

# Utah

## Basin Outlook Report

### January 1, 1999



# Basin Outlook Reports

## and

### Federal - State - Private

### Cooperative Snow Surveys

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#### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **STATE OF UTAH GENERAL OUTLOOK**

**Jan 1, 1999**

## **SUMMARY**

Jan 1, 1999 is similar in significant ways to Jan 1, 1998, much below snowpacks throughout the entire state and below normal precipitation to start the water supply season. The hope is that like last year, this years snowpack will rebound in a big way. Snowpacks across the state range from about 50% to 75% of average, very close to last years 69% of normal figure. This year, we have a La Nina event and general indications are that the southern areas of the state have a high probability of a much below normal snowpack and runoff season. There is only a small chance that the current conditions will improve in the southern areas. In the central and northern areas, (from Manti to Ogden) the La Nina signature with regard to snowpack is generally mixed with about 50% above normal and 50% below, in other words - there isn't much predictability. With that said, if there are no big months ahead, such as the huge snowstorms in January of last year, the peak snowpack will be a bust this spring. Given where the snowpacks are now, there is some pessimism about a large increase in a La Nina year. In extreme northern Utah (Logan and Bear Rivers), La Nina years typically have above normal high elevation snowpack and below normal low elevation snowpacks. Whether that happens this year remains to be seen. It is early in the water year and anything can and undoubtedly will, happen. Seasonal precipitation, (Oct-Dec) ranges from near 75% in the north to near average in the south. Southern Utah had significant early season storms that accounted for much of the north/south disparity. The good news is that reservoirs are generally in excellent condition, most at 70% of capacity or higher. Most operators are following a conservative strategy in anticipation of a poor runoff year. Streamflow forecasts call for below to much below normal April-July runoff.

## **SNOWPACK**

January first snowpacks in Utah, as measured by the NRCS SNOTEL system, are much below average at 65% of normal, about 92% of last years snowpack. Snowpacks range from 51% on the Provo to 75% of average on the Sevier River. One small, very isolated, bright spot is the Escalante Basin which currently has 129% of average due to early storms. The southern areas are not expected to have a great snowpack season, thus this little bright spot may dim considerably in the future. Overall, current snowpack conditions are very discouraging and it certainly could get worse, particularly in the south, where there is a smaller probability that conditions will significantly improve.

## **PRECIPITATION**

Mountain precipitation in December, as measured by the NRCS SNOTEL system, was much below normal in the north (50% - 70%) and even lower in the south, 40% to 65%

of average. This brings the seasonal accumulation (Oct-Apr) to 85% of average statewide.

National Weather Service figures indicate that December precipitation was mostly below normal with most stations near 50% of average. Some exceptions were: Randolph - 134%, Tooele - 145%, Richfield - 127% and Capitol Reef - 126%.

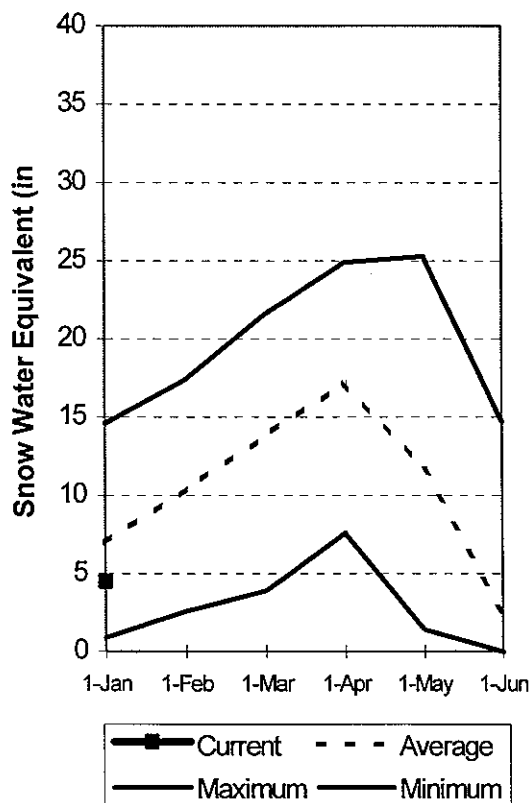
## RESERVOIRS

Storage in 41 of Utah's key irrigation reservoirs is at 86% of capacity. Many reservoirs are retaining as much water as possible in anticipation of a poor runoff season.

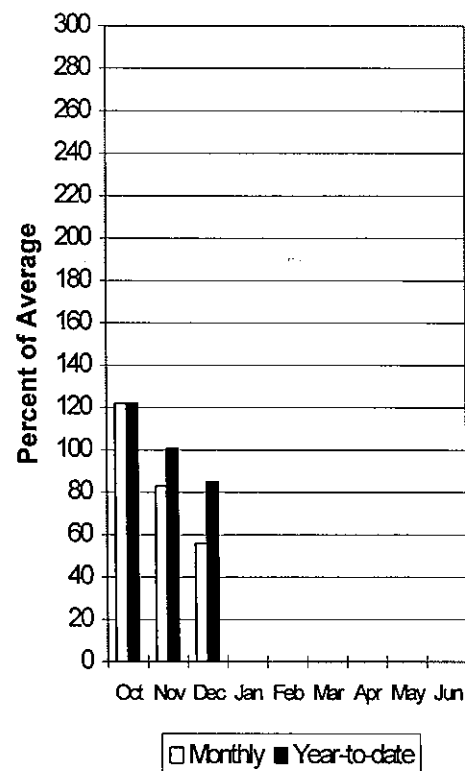
## STREAMFLOW

Snowmelt streamflows are expected to be below to much below average throughout Utah. In general, runoff conditions are poor, however reservoir storage is in excellent shape. Given current snowpacks and anticipated conditions, direct streamflow water users should prepare for a poor season.

**Mountain Snowpack**



**Precipitation**

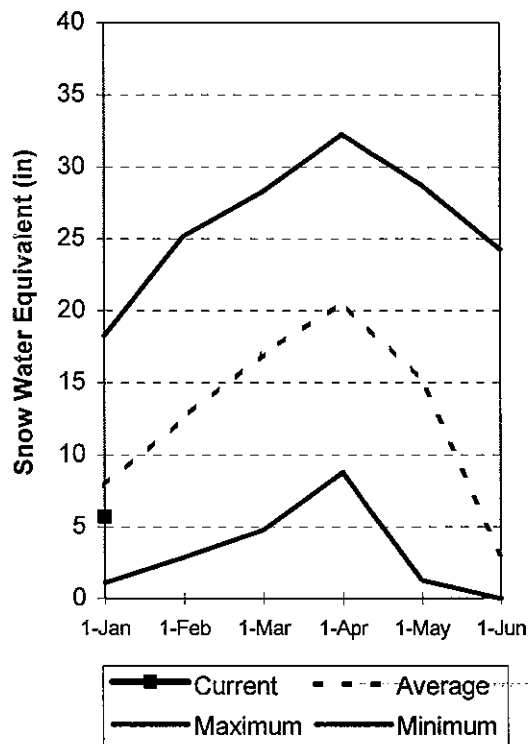


## Bear River Basin

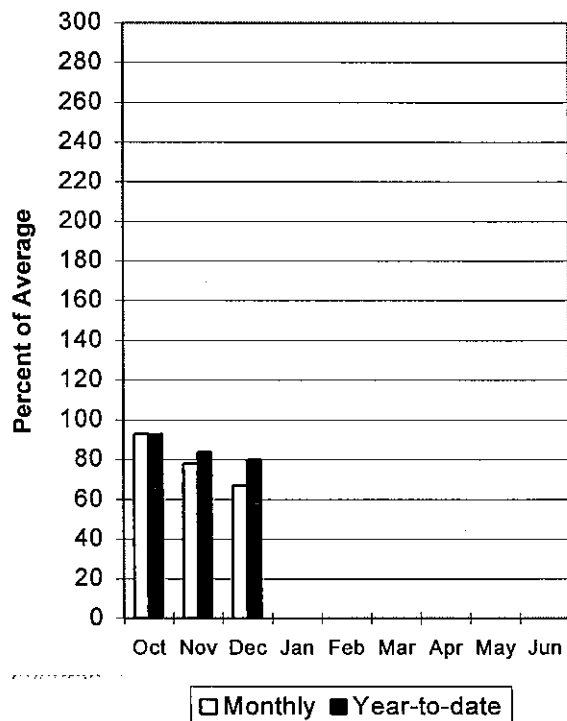
Jan 1, 1999

Snowpack on the Bear River Basin is below average at 72% of normal, about 116% percent of last year. Specific sites range from 58% to 108% of normal. It is still early in the season and snowpacks could rebound.. December precipitation was below normal at 69%, which brings the seasonal accumulation (Oct-Dec) to 78% of average. Snowmelt runoff conditions are below average. Reservoir storage is excellent at 79% capacity, with small reservoirs, except Porcupine which is under repair, essentially full. Water users relying on direct streamflow should prepare for a poor runoff season.

### Mountain Snowpack

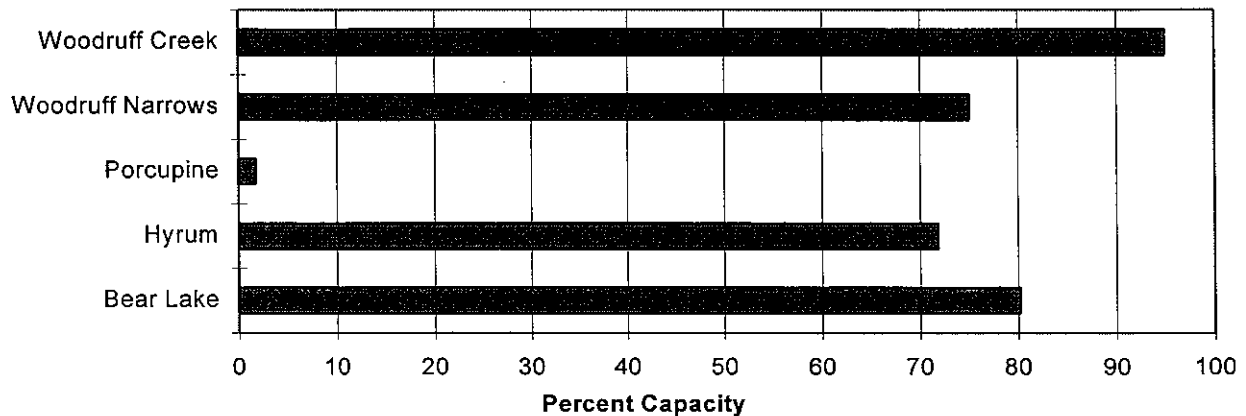


### Precipitation



### Reservoir Storage

1/1/99



BEAR RIVER BASIN  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Bear R nr UT-WY State Line	APR-JUL	58	73	84	73	97	121	115
BEAR R nr Woodruff, UT	APR-JUL	51	76	101	68	134	201	149
BIG CK nr Randolph	APR-JUL	0.42	1.23	2.80	74	4.37	6.69	3.80
BEAR R nr Randolph, UT	APR-JUL	0.0	48	80	68	112	160	118
SMITHS FK nr Border, WY	APR-JUL	51	70	87	85	108	150	102
THOMAS FK nr WY-ID State Line	APR-JUL	10.6	16.8	23	70	31	50	33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	85	153	200	69	247	315	288
CUB R nr Preston	APR-JUL	22	33	40	85	47	58	47
L BEAR RIVER at Paradise, UT	APR-JUL	16.0	22	29	64	36	52	45
LOGAN R nr Logan	APR-JUL	49	67	83	78	102	140	107
BLACKSMITH Fk nr Hyrum	APR-JUL	24	32	39	72	48	64	54

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of December					BEAR RIVER BASIN Watershed Snowpack Analysis - January 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	1139.9	1127.3	982.0	BEAR RIVER, UPPER (abv Ha	6	108	70
HYRUM	15.3	11.0	15.3	10.0	BEAR RIVER, LOWER (blw Ha	7	119	73
PORCUPINE	11.3	0.0	10.5	2.8	LOGAN RIVER	4	112	71
WOODRUFF NARROWS	57.3	43.0	46.0	---	RAFT RIVER	0	0	0
WOODRUFF CREEK	4.0	3.8	3.9	---	BEAR RIVER BASIN	13	114	72

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

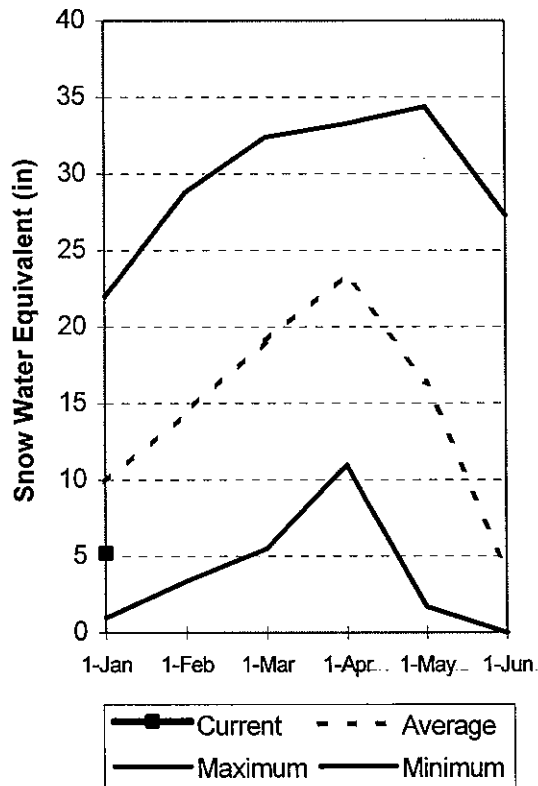
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

## Weber and Ogden River Basins

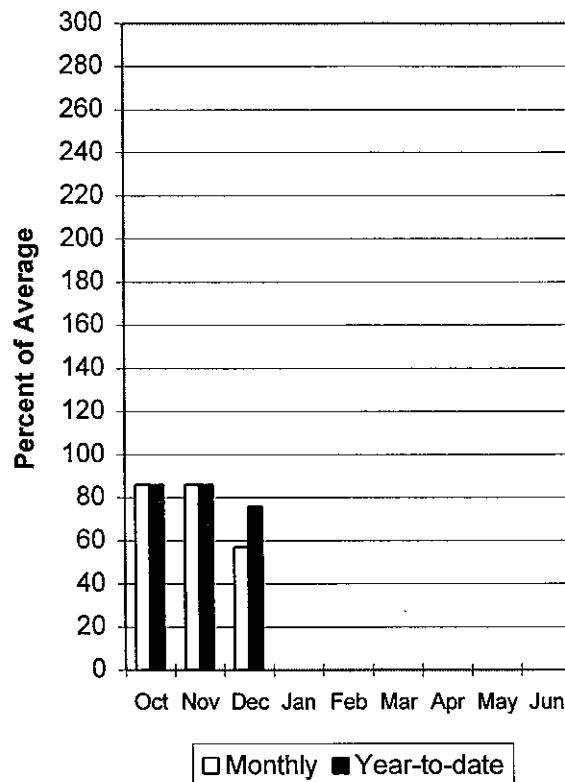
### Jan 1, 1999

Snowpack on the Weber and Ogden Watersheds is at 53% of average, just 91% of last year. Individual sites range from 28% to near 76% of average. Precipitation during December was much below normal at 57% of average, bringing the seasonal accumulation (Oct-Dec) to 76% of average. Snowmelt runoff conditions are much below average and below to much below normal streamflows are expected. Reservoir storage on the Weber system is in excellent condition at 74% of capacity. Lost creek is still empty due to repairs. Water users on direct streamflow should prepare for a poor runoff year.

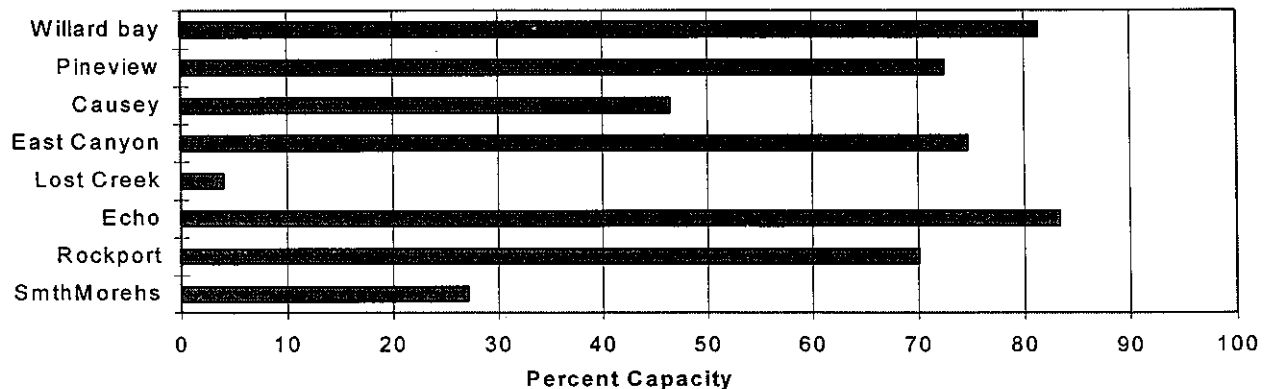
#### Mountain Snowpack



#### Precipitation



#### Reservoir Storage 1/1/99



WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SMITH AND MOREHOUSE CK nr Oakley	APR-JUN	7.2	15.4	21	70	27	35	30
WEBER R nr Oakley	APR-JUL	52	73	88	72	103	124	122
ROCKPORT RESERVOIR inflow	APR-JUL	42	72	92	69	112	142	134
CHALK CK at Coalville, Ut	APR-JUL	5.8	22	33	75	44	60	44
WEBER R nr Coalville, Ut	APR-JUL	48	79	100	74	121	152	136
ECHO RESERVOIR Inflow	APR-JUL	49	94	124	71	154	199	176
LOST CK Res Inflow	APR-JUL	1.5	5.8	12.0	70	18.2	27	17.2
E CANYON CK nr Morgan	APR-JUL	8.3	16.5	22	73	28	36	30
WEBER R at Gateway	APR-JUL	171	212	240	69	268	309	347
S FORK OGDEN R nr Huntsville	APR-JUL	19.2	34	44	70	54	69	63
PINEVIEW RESERVOIR Inflow	APR-JUL	26	60	84	68	108	142	124
WHEELER CK nr Huntsville	APR-JUL	1.44	3.08	4.20	68	5.32	6.96	6.20

WEBER & OGDEN WATERSHEDS in Utah Reservoir Storage (1000 AF) - End of December					WEBER & OGDEN WATERSHEDS in Utah Watershed Snowpack Analysis - January 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CAUSEY	7.1	3.3	6.9	2.1	OGDEN RIVER	4	94	47
EAST CANYON	49.5	37.0	37.3	33.3	WEBER RIVER	8	91	60
ECHO	73.9	61.6	60.3	41.4	WEBER & OGDEN WATERSHEDS	12	92	55
LOST CREEK	22.5	0.9	2.5	12.7				
PINEVIEW	110.1	79.9	54.2	50.0				
ROCKPORT	60.9	42.7	37.3	34.1				
WILLARD BAY	215.0	175.0	187.4	104.9				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

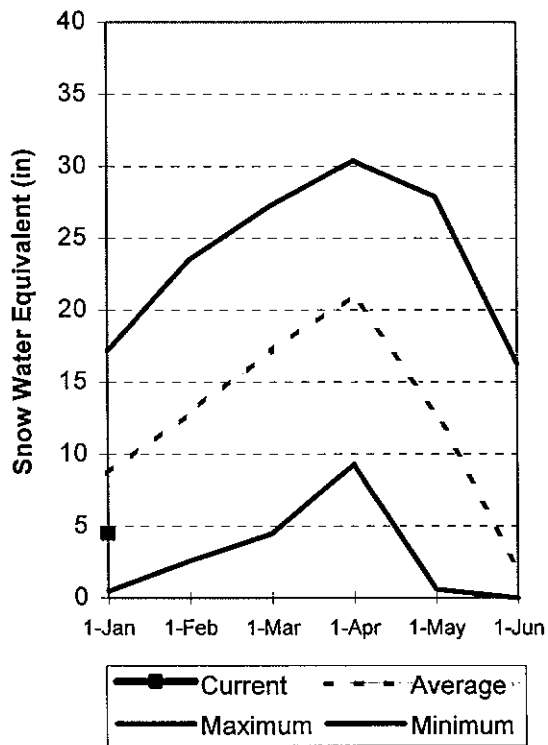


# Utah Lake, Jordan River & Tooele Valley Basins

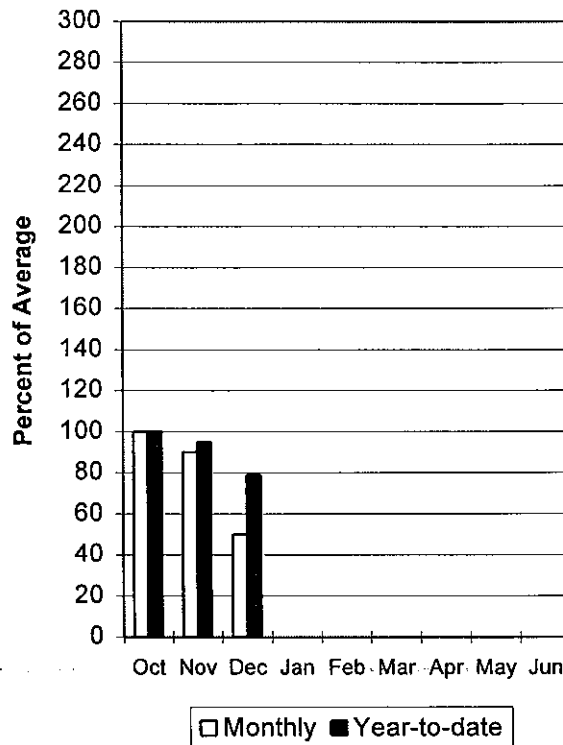
Jan 1, 1999

Snowpacks over these watersheds are much below average at 51% of normal, just 80% of last year. Individual sites range from 37% to 73% of average. Precipitation during December was much below normal at 50%, bringing the seasonal accumulation (Oct-Dec) to 79% of average. Reservoir storage is at 94% of capacity, higher than normal in anticipation of a poor runoff year. Water supply conditions are much below normal and much below average runoff is expected. Water users on direct streamflow should prepare for a poor runoff season.

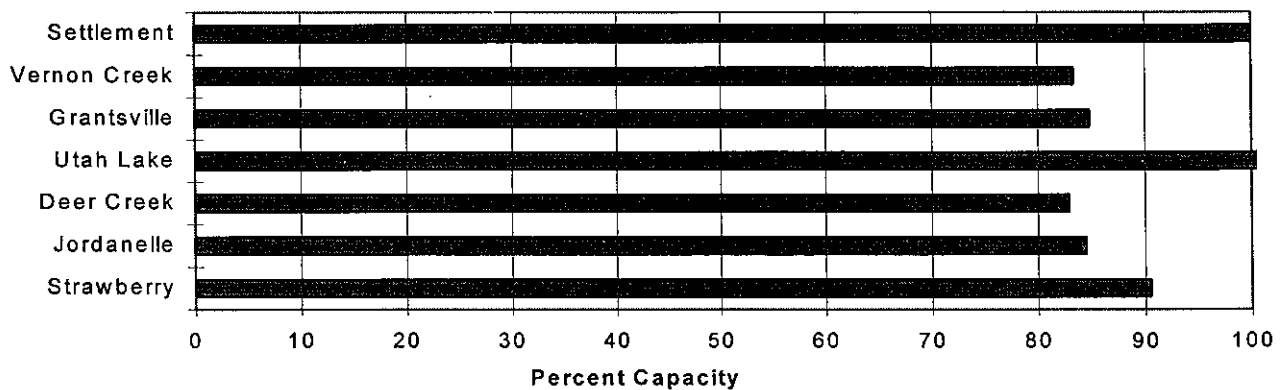
## Mountain Snowpack



## Precipitation



## Reservoir Storage 1/1/99



UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PAYSON CK nr Payson	APR-JUL	1.98	2.46	3.00	68	3.52	6.82	4.40
SPANISH FORK nr Castilla	APR-JUL	8.1	25	42	57	59	108	74
HOBBLE CK nr Springville	APR-JUL	2.3	6.8	11.0	59	15.2	23	18.8
PROVO R nr Hailstone	APR-JUL	29	56	73	67	90	117	109
PROVO R below Deer Creek Dam	APR-JUL	10.0	54	81	63	108	152	128
AMERICAN FORK nr American Fk.	APR-JUL	3.8	14.6	21	66	27	38	32
UTAH LAKE inflow	APR-JUL	19.0	144	220	68	464	421	324
L COTTONWOOD CRK nr SLC	APR-JUL	19.9	28	33	85	38	46	39
BIG COTTONWOOD CRK nr SLC	APR-JUL	21	28	33	87	38	45	38
PARLEY'S CK nr SLC	APR-JUL	0.3	6.3	10.0	63	13.7	19.7	15.9
MILL CK nr SLC	APR-JUL	1.69	3.57	4.70	72	5.83	7.67	6.50
DELL FK nr SLC	APR-JUL	0.57	2.78	4.60	65	6.42	9.59	7.10
EMIGRATION CK nr SLC	APR-JUL	0.50	1.47	2.50	60	3.53	6.30	4.20
CITY CK nr SLC	APR-JUL	0.33	3.12	4.90	59	6.68	9.46	8.30
VERNON CK nr Vernon (in Acre Feet)	APR-JUL	361	593	830	62	1163	1907	1340
SETTLEMENT CK nr Tooele (in Acre Fee	APR-JUL	346	828	1500	65	2717	6504	2300
S WILLOW CK nr Grantsville	APR-JUL	0.09	0.98	2.00	65	3.02	4.52	3.10

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Reservoir Storage (1000 AF) - End of December

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Watershed Snowpack Analysis - January 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	124.1	136.0	93.5	PROVO RIVER & UTAH LAKE	7	86	47
GRANTSVILLE	3.3	2.8	2.0	---	PROVO RIVER	4	105	50
SETTLEMENT CREEK	1.0	1.0	0.7	0.6	JORDAN RIVER & GREAT SALT	5	98	55
STRAWBERRY-ENLARGED	1105.9	1001.0	982.0	---	TOOELE VALLEY WATERSHEDS	4	60	53
UTAH LAKE	870.9	904.7	866.8	601.6	UTAH LAKE, JORDAN RIVER &	16	82	51
VERNON CREEK	0.6	0.5	0.5	0.4				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

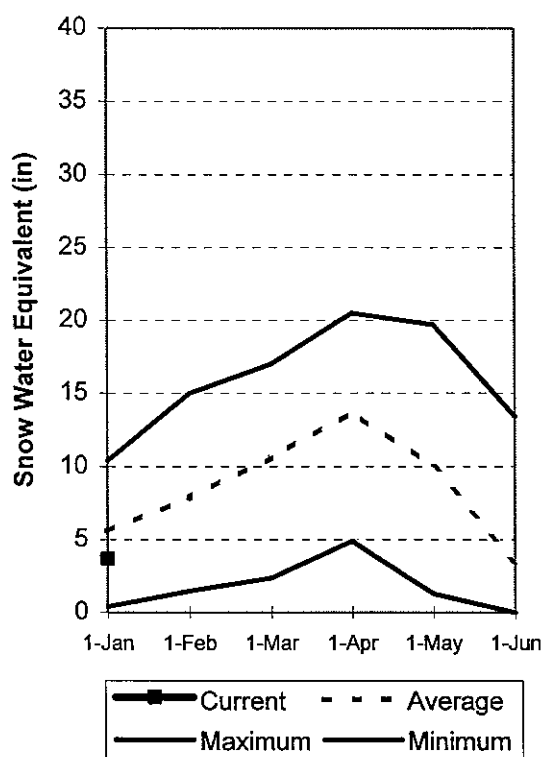
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
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# **Uintah Basin and Dagget SCD's**

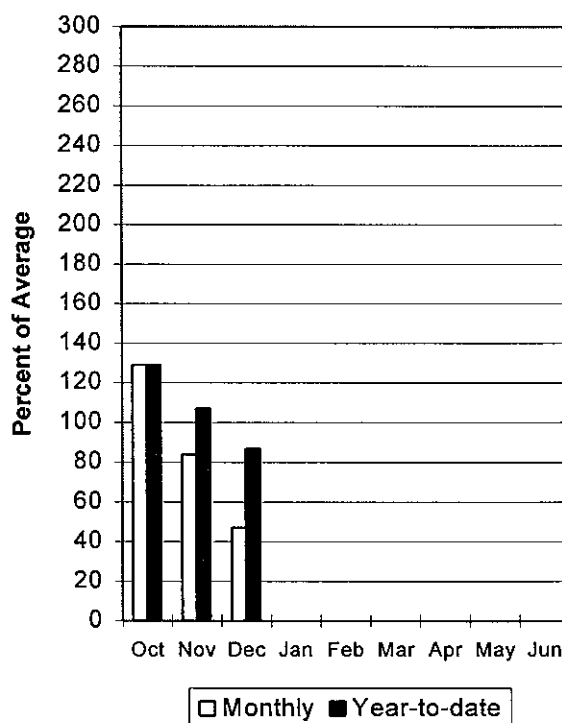
**Jan 1, 1999**

Snowpacks across the Uintah Basin and North Slope areas are much below average (67%). The North Slope is at 72% and the Uintah Basin ranges from 46% to 96% of average. Snowpacks in these areas are 87% of last year. Precipitation during December was 47% of normal, bringing the seasonal accumulation (Oct-Dec) to 87% of average. Reservoir storage is excellent at 90% of capacity. Water supply conditions are much below normal. Snowmelt streamflow is expected to be below to much below normal. Water users on direct streamflow should prepare for a poor runoff season.

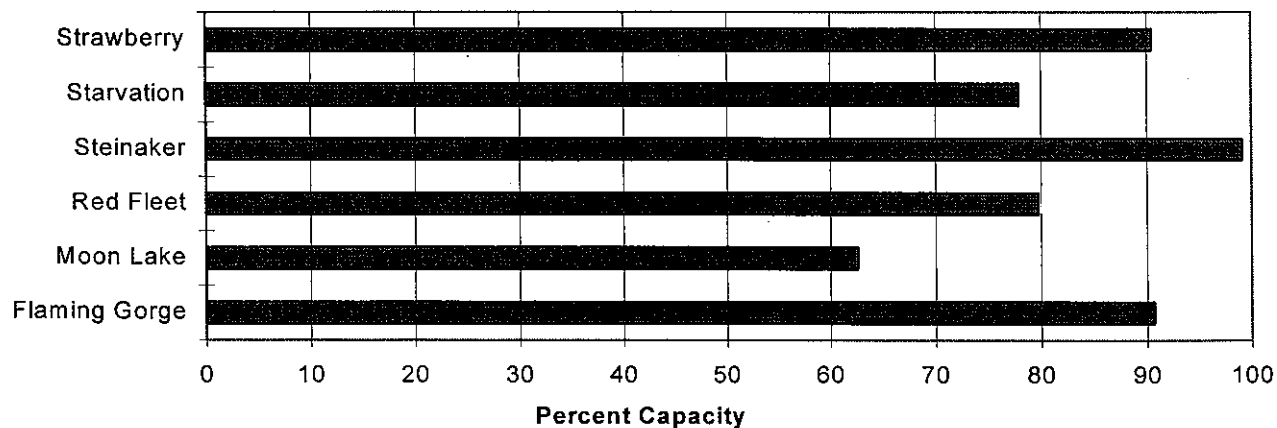
**Mountain Snowpack**



**Precipitation**



**Reservoir Storage**  
1/1/99



UINTAH BASIN & DAGGET SCD'S  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50 (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
EF of Smiths Fork nr Robertson	APR-JUL	17.8	21	24	80	27	32	30
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	5.9	12.4	15.5	78	18.6	25	19.8
Ashley Creek nr Vernal	APR-JUL	12.2	28	37	73	46	62	51
WF DUCHESNE RIVER nr Hanna	APR-JUL	5.7	13.4	17.5	67	22	29	26
DUCHESNE R nr Tabiona	APR-JUL	33	63	75	71	87	118	105
ROCK CK nr Mountain Home	APR-JUL	47	69	80	85	92	113	94
UPPER STILLWATER RESV inflow	APR-JUL	36	52	65	80	78	94	81
DUCHESNE R abv Knight Diversion	APR-JUL	79	122	150	79	178	219	189
STRAWBERRY RES nr Soldier Springs	APR-JUL	18.1	27	40	68	55	82	59
CURRENT CREEK RESV Inflow	APR-JUL	8.2	11.3	15.0	71	18.7	24	21
STARVATION RESERVOIR inflow	APR-JUL	45	51	80	68	109	151	117
MOON LAKE Inflow	APR-JUL	43	56	65	94	74	87	69
Yellowstone River nr Altonah	APR-JUL	34	50	60	92	71	86	65
DUCHESNE R at Myton	APR-JUL	42	118	170	65	222	298	263
Whiterocks River nr Whiterocks	APR-JUL	16.4	33	45	78	57	74	58
UINTA R nr Neola	APR-JUL	23	49	67	79	85	111	85
DUCHESNE R nr Randlett	APR-JUL	46	99	200	61	301	450	328

UINTAH BASIN & DAGGET SCD'S Reservoir Storage (1000 AF) - End of December					UINTAH BASIN & DAGGET SCD'S Watershed Snowpack Analysis - January 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FLAMING GORGE	3749.0	3401.0	3323.0	---	UPPER GREEN RIVER in UTAH	6	68	72
MOON LAKE	49.5	31.0	---	27.3	ASHLEY CREEK	2	71	55
RED FLEET	25.7	20.5	21.0	---	BLACK'S FORK RIVER	2	78	73
STEINAKER	33.4	33.1	32.0	18.2	SHEEP CREEK	1	41	88
STARVATION	165.3	128.8	133.0	105.2	DUCHESNE RIVER	11	99	67
STRAWBERRY-ENLARGED	1105.9	1001.0	982.0	---	LAKE FORK-YELLOWSTONE CRE	4	94	74
					STRAWBERRY RIVER	4	92	46
					UINTAH-WHITEROCKS RIVERS	2	132	96
					UINTAH BASIN & DAGGET SCD	17	88	68

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

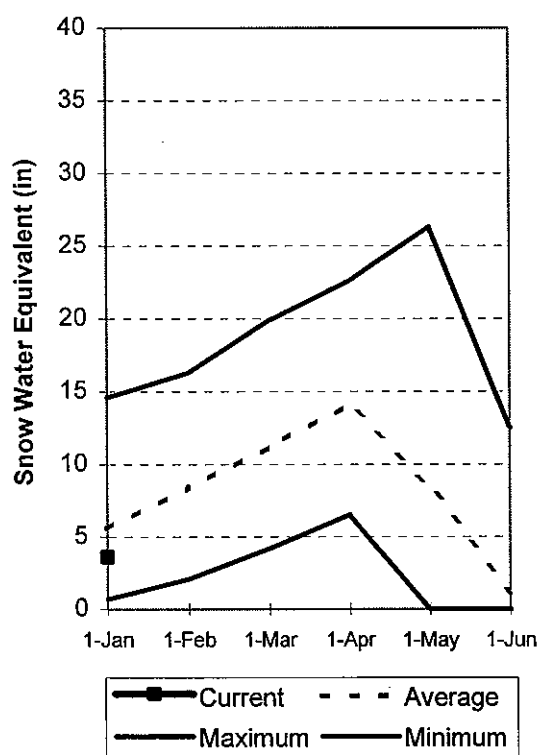
(2) - The value is natural flow - actual flow may be affected by upstream water management.

# Carbon, Emery, Wayne, Grand and San Juan Co.

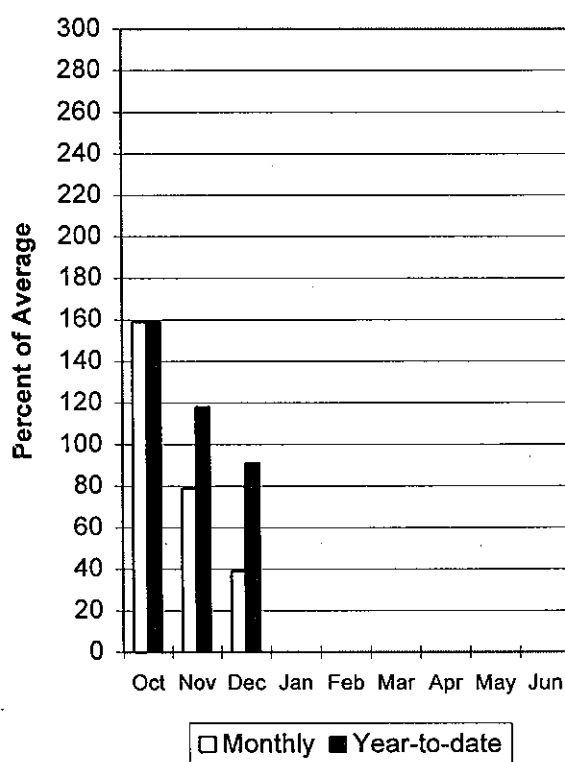
Jan 1, 1999

Snowpacks in this region are at 64% of average, only 91% of last year. Individual sites range from 39% to 135% of average. Precipitation during December was much below average at 39%, bringing the seasonal accumulation (Oct-Dec) to 91% of normal. Reservoir storage is in excellent shape at 73% of capacity. General water supply conditions are below to much below average throughout the region and below average flows are expected. Water users on direct streamflow should prepare for a poor runoff season.

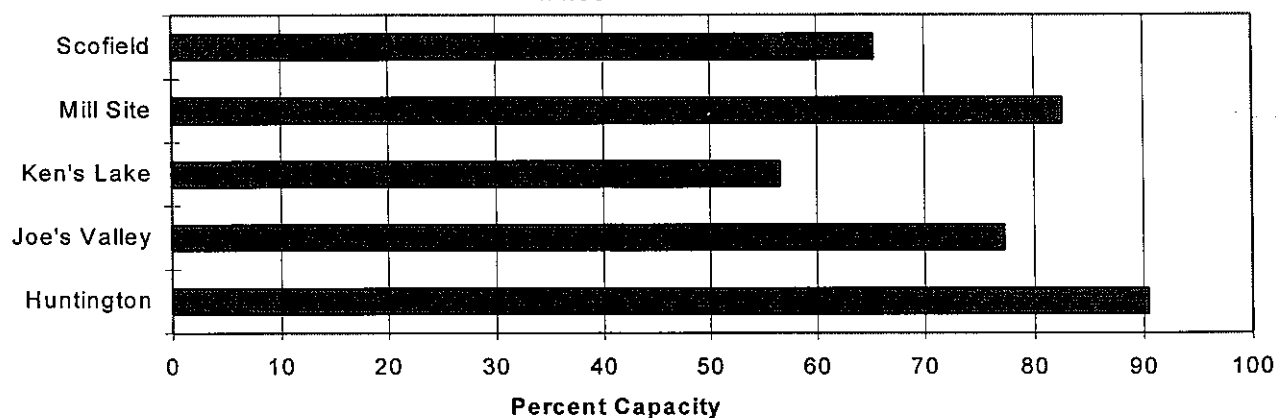
## Mountain Snowpack



## Precipitation



## Reservoir Storage 1/1/99



CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		90%		Chance Of Exceeding *		30%		30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	1.3	5.7	8.0	68	10.3	14.7	11.7
Scofield Reservoir inflow	APR-JUL	7.9	26	33	75	40	71	44
White River blw Tabbyune Creek	APR-JUL	0.9	8.4	12.0	64	16.2	24	18.7
Green River at Green River, UT	APR-JUL	819	1720	2250	71	2780	3687	3151
Electric Lake inflow	APR-JUL	4.0	7.1	10.0	66	13.5	20	15.1
HUNTINGTON CK nr Huntington	APR-JUL	6.2	19.2	28	68	37	54	41
JOE'S VALLEY RESV Inflow	APR-JUL	12.2	27	38	72	49	67	53
Ferron Creek nr Ferron	APR-JUL	15.0	22	28	72	34	45	39
Colorado River nr Cisco	APR-JUL	1116	2136	2900	70	3664	4710	4132
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	1.08	1.27	2.80	47	4.33	6.59	6.00
Indian Creek abv Cottonwood Creek	MAR-JUL	0.10	0.28	0.74	29	2.23	4.43	2.55
Seven Mile Creek nr Fish Lake	APR-JUL	2.66	2.92	4.50	69	6.08	8.40	6.50
Muddy Creek nr Emery	APR-JUL	2.9	9.6	14.0	71	18.4	26	19.6
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	0.06	0.43	2.90	48	5.37	9.01	6.07
San Juan River nr Bluff	APR-JUL	104	625	840	73	1055	1578	1152

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of December

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - January 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	3.8	3.3	2.0	PRICE RIVER	3	63	45
JOE'S VALLEY	61.6	47.6	47.6	42.7	SAN RAFAEL RIVER	3	98	59
KEN'S LAKE	2.3	1.3	1.9	---	MUDDY CREEK	1	100	50
MILL SITE	16.7	13.8	16.9	3.0	FREMONT RIVER	3	159	104
SCOFIELD	65.8	43.0	42.2	30.3	LASAL MOUNTAINS	1	58	50
					BLUE MOUNTAINS	1	76	70
					WILLOW CREEK	1	76	130
					CARBON, EMERY, WAYNE, GRA	13	91	64

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

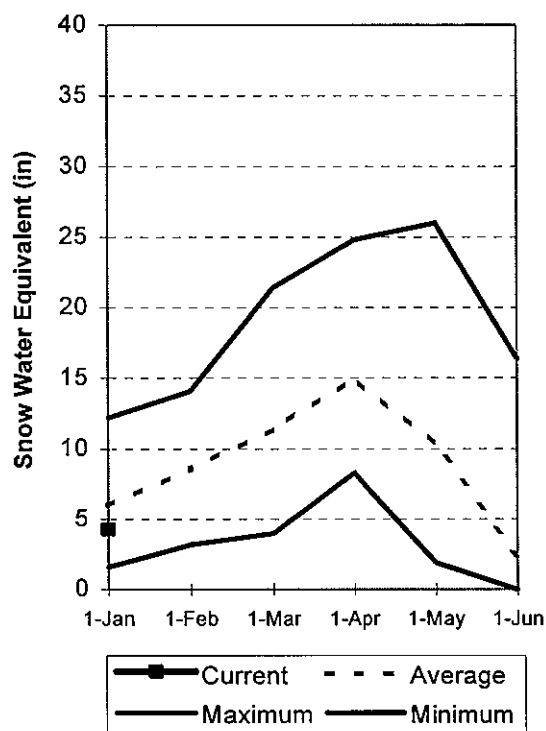
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Sevier and Beaver River Basins

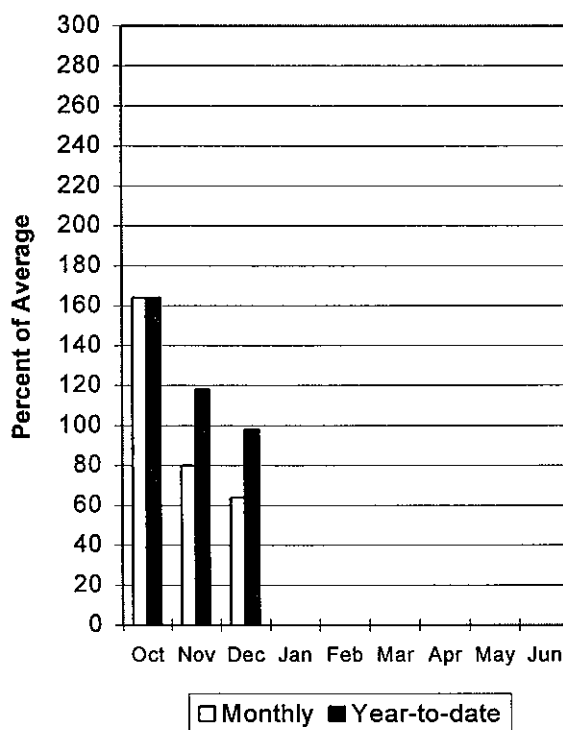
Jan 1, 1999

Snowpacks on the Sevier River Basin are much below normal at 75% of average, just 89% of last year. The East Fork of the Sevier is the highest at 106% while the lower Sevier is lowest at 62% of normal. Individual sites range from 29% to 124% of average. La Nina years are typically not kind to southern Utah and these numbers have little chance of increasing and could get worse! Precipitation during December was below average at 56% of normal, bringing the seasonal accumulation (Oct-Dec) to 101% of average. Reservoir storage is in excellent condition at 88% of capacity. General water supply conditions are poor.

### Mountain Snowpack

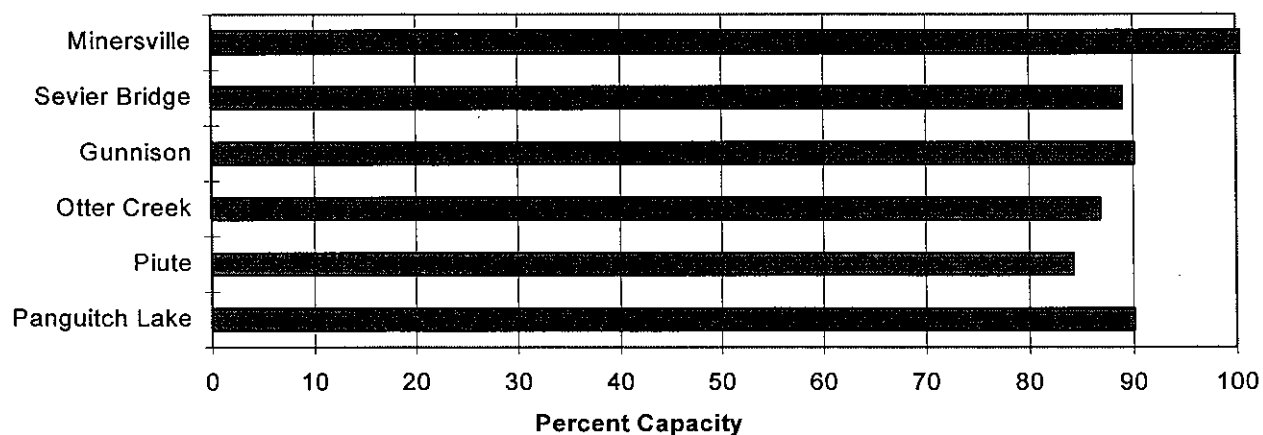


### Precipitation



### Reservoir Storage

1/1/99



SEVIER & BEAVER RIVER BASINS  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SEVIER R at Hatch	APR-JUL	14.0		44	82		88	54
SEVIER R nr Circleville	APR-JUL	14.1	43	62	83	81	110	75
SEVIER R nr Kingston	APR-JUL	14.9	49	69	83	89	123	83
ANTIMONY CK nr Antimony	APR-JUL	3.48	5.49	6.50	88	7.51	9.47	7.40
E F SEVIER R nr Kingston	APR-JUL	5.1	16.5	27	90	38	55	30
SEVIER R blw Piute Dam	APR-JUL	8.0	61	92	80	123	176	115
CLEAR CK nr Sevier	APR-JUL	3.4	11.6	16.6	79	22	30	21
SALINA CK at Salina	APR-JUL	0.9	2.7	11.5	65	20	37	17.6
PLEASANT CK nr Pleasant	APR-JUL	2.13	4.32	5.50	65	6.68	8.93	8.50
EPHRAIM CK nr Ephraim	APR-JUL	1.4	5.4	7.6	60	9.8	13.9	12.6
SEVIER R nr Gunnison	APR-JUL	65		176	74		404	239
CHICKEN CK nr Levan	APR-JUL	0.92	1.82	2.90	62	4.62	9.15	4.70
OAK CK nr Oak City (Acre Feet)	APR-JUL	483	788	1100	62	1535	2505	1777
BEAVER R nr Beaver	APR-JUL	14.6	18.1	21	81	24	30	26
MINERSVILLE RESERVOIR Inflow	APR-JUL	5.6	9.2	13.0	78	18.3	30	16.7

SEVIER & BEAVER RIVER BASINS  
Reservoir Storage (1000 AF) - End of December

SEVIER & BEAVER RIVER BASINS  
Watershed Snowpack Analysis - January 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNNISON	20.3	18.3	15.5	9.5	UPPER SEVIER RIVER (south	7	112	84
MINERSVILLE (RkyFd)	23.3	24.5	18.2	9.3	EAST FORK SEVIER RIVER	2	141	106
OTTER CREEK	52.5	45.6	45.6	23.8	SOUTH FORK SEVIER RIVER	5	100	75
PIUTE	71.8	60.5	59.7	29.3	LOWER SEVIER RIVER (inclu	6	69	64
SEVIER BRIDGE	236.0	210.1	186.6	87.0	BEAVER RIVER	2	87	79
PANGUITCH LAKE	22.3	20.1	14.2	---	SEVIER & BEAVER RIVER BAS	15	87	74

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

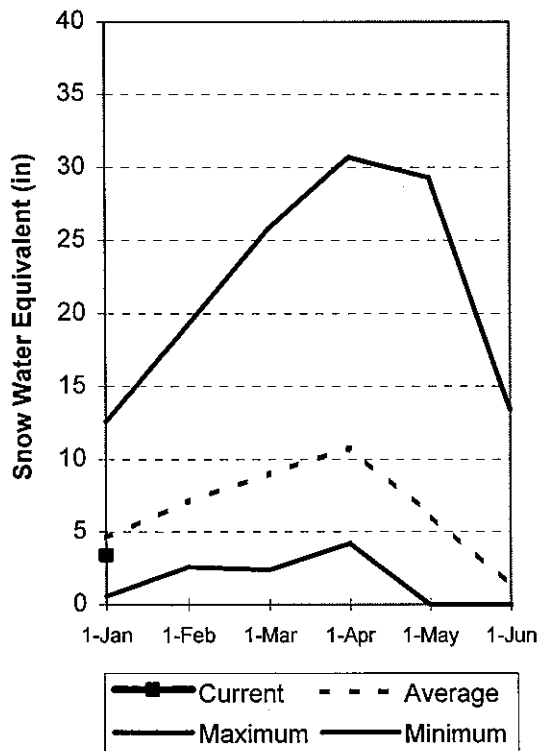


## E. Garfield, Kane, Washington, & Iron co.

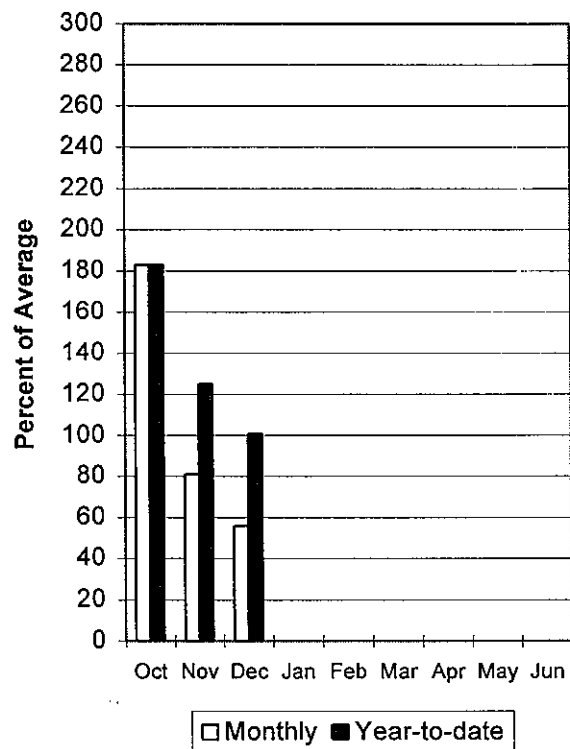
Jan 1, 1999

Snowpacks in this region are below normal at 75% of average, about 106% of last year. Individual sites range from 14% to over 135% of average. La Nina years are typically not kind to southern Utah and these figures could get worse! Precipitation during December was much below normal at 56% of average, bringing the seasonal accumulation (Oct-Dec) to 101% of normal. Reservoir storage is in excellent shape at 86% of capacity. General water supply conditions are below average. Water users on direct streamflow should prepare for a poor runoff season.

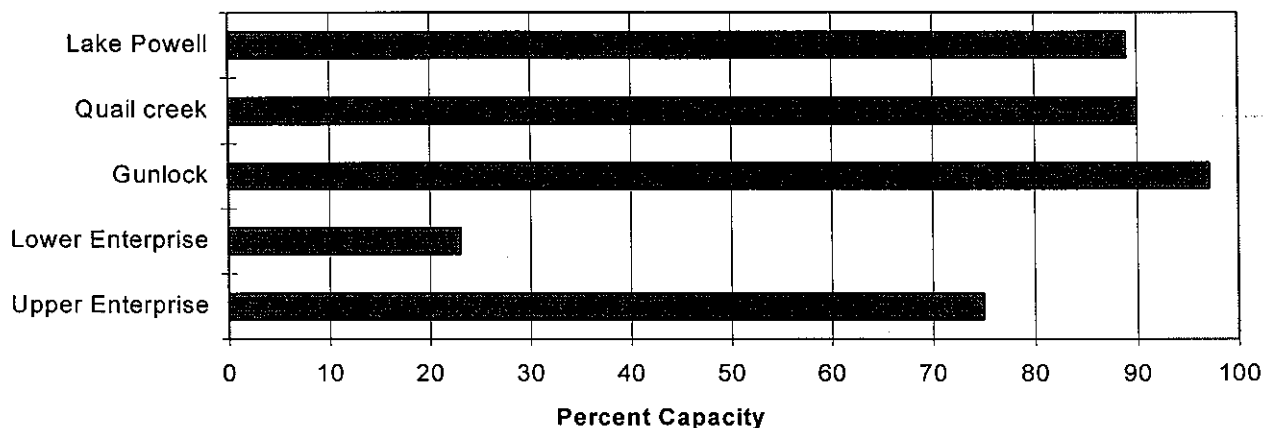
### Mountain Snowpack



### Precipitation



### Reservoir Storage 1/1/99



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - January 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		90%		Chance Of Exceeding *		30%		30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Lake Powell inflow	APR-JUL	2088	4090	5500	71	6910	8973	7735
Virgin River nr Virgin	APR-JUL	13.2	35	40	61	58	104	66
Virgin River nr Hurricane	APR-JUL	10.1	46	50	69	65	140	72
Santa Clara River nr Pine Valley	APR-JUL	1.01	2.05	3.50	66	5.33	10.02	5.30

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Reservoir Storage (1000 AF) - End of December

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Watershed Snowpack Analysis - January 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK	10.4	10.1	8.2	---	VIRGIN RIVER	5	93	69
LAKE POWELL	24322.0	21654.0	21595.0	---	PAROWAN	2	96	81
QUAIL CREEK	40.0	36.0	34.0	---	ENTERPRISE TO NEW HARMONY	2	21	11
UPPER ENTERPRISE	10.0	7.5	2.5	---	COAL CREEK	2	91	66
LOWER ENTERPRISE	2.6	0.6	0.6	---	ESCALANTE RIVER	2	196	129
					E. GARFIELD, KANE, WASHIN	9	106	75

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SNOW COURSE DATA  
FOR THE STATE OF UTAH  
As of JANUARY 1999

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
AGUA CANYON SNOTEL	8900	1/01	-	3.4	2.4	3.2	DRY FORK SNOTEL	7160	1/01	-	4.7	8.9	8.6
ALTA CENTRAL	8800	12/30	32	10.8	11.2	19.0	EAST WILLOW CREEK SN	8250	1/01	-	2.6	3.4	2.0
BEAVER DAMS SNOTEL	8000	1/01	-	2.0	2.4	4.6	FARMINGTON CN SNOTEL	8000	1/01	-	8.2	10.7	12.3
BEAVER DIVIDE SNOTL	8280	1/01	-	2.4	2.5	4.8	FARMINGTON CANYON L.	6950	1/01	-	-	-	-
BEN LOWMOND PK SNOTL	8000	1/01	-	6.6	6.4	15.9	FARNSWORTH LK SNOTEL	9600	1/01	-	8.1	7.4	8.7
BEN LOWMOND TR SNOTL	6000	1/01	-	3.1	4.3	11.1	FISH LAKE	8700	1/01	-	-	-	-
BEVAN'S CABIN	6450	1/01	-	-	-	-	FIVE POINTS LAKE SNO	10920	1/01	-	4.7	5.6	8.4
BIG FLAT SNOTEL	10290	1/01	-	7.0	6.9	8.7	FRANCES FLATS	6700	12/29	20	4.8	6.5	9.6
BIRCH CROSSING	8100	1/01	-	-	-	-	G.B.R.C. HEADQUARTER	8700	-	-	-	-	-
BLACK FLAT-U.M. CK S	9400	1/01	-	2.3	2.7	4.2	G.B.R.C. MEADOWS	10000	-	-	-	-	-
BLACK'S FORK GS-EF	9340	1/01	-	-	-	-	GARDEN CITY SUMMIT	7600	-	-	-	-	-
BLACK'S FORK JUNCTN	8930	1/01	-	-	-	-	GEORGE CREEK	8840	-	-	-	-	-
BOX CREEK SNOTEL	9800	1/01	-	5.0	4.8	5.5	GOOSEBERRY R.S.	8400	-	-	-	-	-
BRIAN HEAD	10000	1/01	-	-	-	-	GOOSEBERRY R.S. SNOT	7900	1/01	-	2.4	2.5	4.7
BRIGHTON SNOTEL	8750	1/01	-	5.4	5.6	8.9	HARDSCHABLE SNOTEL	7250	1/01	-	2.9	4.2	9.3
BRIGHTON CABIN	8700	12/30	30	8.5	7.7	12.5	HARRIS FLAT SNOTEL	7700	1/01	-	0.9	1.0	3.1
BROWN DUCK SNOTEL	10600	1/01	-	7.2	4.6	8.5	HAYDEN FORK SNOTEL	9100	1/01	-	4.8	4.0	6.8
BRUCE CANYON	8000	1/01	-	-	-	2.0	HENRY'S FORK	10000	1/01	-	-	-	-
BUCK FLAT SNOTEL	9800	1/01	-	4.5	5.5	7.2	HEWINTA SNOTEL	9500	1/01	-	3.1	4.3	3.9
BUCK PASTURE	9700	1/01	-	-	-	-	HICKERSON PARK SNOTE	9100	1/01	-	2.3	5.6	2.6
BUCKBOARD FLAT	9000	1/01	-	-	-	-	HIDDEN SPRINGS	5500	12/29	4	0.9	3.2	4.5
BUG LAKE SNOTEL	7950	1/01	-	5.1	5.2	8.8	HOBBLE CREEK SUMMIT	7420	-	-	-	-	-
BURT'S-MILLER RANCH	7900	1/01	-	-	-	-	HOLE-IN-ROCK SNOTEL	9150	1/01	-	2.9	3.8	2.3
CAMP JACKSON SNOTEL	8600	1/01	-	2.8	3.7	4.0	HORSE RIDGE SNOTEL	8260	1/01	-	5.9	5.2	10.0
CASTLE VALLEY SNOTL	9580	1/01	-	4.7	4.1	5.2	HUNTINGTON-HORSESHOE	9800	-	-	-	-	-
CHALK CK #1 SNOTEL	9100	1/01	-	5.7	7.2	10.3	INDIAN CANYON SNOTEL	9100	1/01	-	2.2	3.2	4.1
CHALK CK #2 SNOTEL	8200	1/01	-	5.1	6.2	6.7	JOHNSON VALLEY	8850	-	-	-	-	-
CHALK CREEK #3	7500	1/01	-	-	-	-	KILFOIL CREEK	7300	-	-	-	-	-
CHEPEETA SNOTEL	10300	1/01	-	5.2	5.0	6.1	KILLION CANYON	6300	1/04	10	1.8	2.9	4.7
CITY CREEK	7500	12/29	24	5.7	8.0	15.7	KIMBERLY MINE SNOTEL	9300	1/01	-	5.2	4.8	5.8
CLEAR CK RIDG #1 SNT	9200	1/01	-	3.0	5.9	8.1	KING'S CABIN SNOTEL	8730	1/01	-	2.9	4.4	5.4
CLEAR CK RIDG #2 SNT	8000	1/01	-	2.7	4.8	6.1	KLONDIKE NARROWS	7400	-	-	-	-	-
CORRAL	8200	1/01	-	-	-	-	KOLOB SNOTEL	9250	1/01	-	6.9	7.4	7.2
CURRENT CREEK SNOTEL	8000	1/01	-	2.7	1.9	4.3	LAKEFORK #1 SNOTEL	10100	1/01	-	4.5	7.1	5.2
DANIELS-STRAWBERRY S	8000	1/01	-	3.3	3.0	7.3	LAKEFORK BASIN SNOTE	10900	1/01	-	6.9	7.5	9.6
DESERET PEAK	9250	1/01	-	-	-	-	LAKEFORK MOUNTAIN #3	8400	-	-	-	-	-
DESERET PEAK AM	9250	1/01	-	-	-	-	LAMBS CANYON	7400	12/30	22	5.6	4.9	7.3
DESERET PEAK SNOTEL	9250	1/01	-	4.1	7.1	7.7	LASAL MOUNTAIN LOWER	8800	-	-	-	-	-
DILL'S CAMP SNOTEL	9200	1/01	-	3.1	3.1	6.2	LASAL MOUNTAIN SNOTE	9850	1/01	-	2.8	4.8	5.6
DONKEY RESERVOIR SNO	9800	1/01	-	5.0	2.7	3.7	LILLY LAKE SNOTEL	9050	1/01	-	4.7	4.8	6.2
DRY BEAD POND SNOTL	8350	1/01	-	5.2	4.2	9.6	LITTLE BEAR LOWER	6000	-	-	-	-	-

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
LITTLE BEAR SNOTEL	6550	1/01	-	2.1	3.4	6.6	TROUT CREEK SNOTEL	9400	1/01	-	2.5	3.2	4.5
LITTLE GRASSY SNOTEL	6100	1/01	-	0.0	1.5	1.1	UPPER JOES VALLEY	8900				-	-
LONG FLAT SNOTEL	8000	1/01	-	0.5	0.9	3.5	VERNON CREEK SNOTEL	7500	1/01	-	2.2	3.8	4.3
LONG VALLEY JCT. SNT	7500	1/01	-	0.7	0.5	1.2	VIPONT	7670				-	-
LOOKOUT PEAK SNOTEL	8200	1/01	-	5.8	6.7	12.7	WEBSTER FLAT SNOTEL	9200	1/01	-	3.6	3.6	7.0
LOST CREEK RESERVOIR	6130				-	-	WHITE RIVER #1 SNOTE	8550	1/01	-	2.2	2.4	5.6
MAMMOTH-COTTONWD SNT	8800	1/01	-	4.3	6.8	7.4	WHITE RIVER #3	7400				-	-
MERCHANT VALLEY SNOT	8750	1/01	-	4.2	5.9	5.5	WIDTSOE #3 SNOTEL	9500	1/01	-	5.6	2.7	4.5
MIDDLE CANYON	7000				-	-	WIGLEY CREEK	9000				-	-
MIDWAY VALLEY SNOTEL	9800	1/01	-	7.6	8.7	10.0	YANKEE RESERVOIR	8700				-	-
MILL CREEK	6950	12/30	19	5.1	6.7	9.0							
MILL-D NORTH SNOTEL	8960	1/01	-	7.4	6.9	10.1							
MILL-D SOUTH FORK	7400	12/30	19	6.3	5.7	8.4							
MINING FORK SNOTEL	8000	1/01	-	3.0	6.2	6.1							
MONTE CRISTO SNOTEL	8960	1/01	-	7.3	8.8	11.0							
MOSBY MTN. SNOTEL	9500	1/01	-	5.0	2.7	4.5							
MT. BALDY R.S.	9500				-	-							
MUD CREEK #2	8600				-	-							
OAK CREEK	7760				-	6.1							
PANGUITCH LAKE R.S.	8200				-	-							
PARLEY'S CANYON SUM.	7500	12/30	19	5.0	6.5	8.1							
PARLEY'S CANYON SNOT	7500	1/01	-	4.0	3.4	8.2							
PAYSON R.S. SNOTEL	8050	1/01	-	3.8	3.7	7.9							
PICKLE KEG SNOTEL	9600	1/01	-	3.3	6.3	6.7							
PINE CREEK SNOTEL	8800	1/01	-	4.7	10.7	7.7							
RED PINE RIDGE SNOTE	9200	1/01	-	3.4	3.5	7.5							
REDDEN MINE LOWER	8500				-	-							
REES'S FLAT	7300				-	-							
ROCK CREEK SNOTEL	7900	1/01	-	2.5	2.9	4.1							
ROCKY BN-SETTLEMT SN	8900	1/01	-	6.4	8.9	11.8							
SEELEY CREEK SNOTEL	10000	1/01	-	4.9	4.0	7.1							
SILVER LAKE (BRIGHT.)	8730	12/30	29	8.4	7.2	10.6							
SMITH MOREHOUSE SNTL	7600	1/01	-	3.2	3.8	5.8							
SNOWBIRD SNOTEL	9700	1/01	-	7.5	8.2	15.0							
SPIRIT LAKE	10300				-	-							
SQUAW SPRINGS	9300				-	-							
STEEL CREEK PARK SNO	10100	1/01	-	5.0	6.1	7.2							
STILLWATER CAMP	8550				-	-							
STRAWBERRY DIVIDE SN	8400	1/01	-	2.8	3.8	8.0							
SUSC RANCH	8200				-	-							
TALL POLES	8800				-	-							
THAYNES CANYON SNOTL	9200	1/01	-	5.9	5.7	7.9							
THISTLE FLAT	8500				-	-							
TIMBERLINE	9100				-	-							
TIMPANOGOS DIVIDE SN	8140	1/01	-	5.4	4.9	9.4							
TONY GROVE LK SNOTEL	8400	1/01	-	12.7	9.8	14.5							
TONY GROVE R.S.	6250				-	-							
TRIAL LAKE	9960				-	-							
TRIAL LAKE SNOTEL	9960	1/01	-	5.0	5.0	10.8							

*Issued by*

**Pearlie S. Reed  
Chief**

**Natural Resources Conservation Service  
U.S. Department of Agriculture**

*Released by*

**Phillip J. Nelson**

**State Conservationist**

**Natural Resources Conservation Service  
Salt Lake City, Utah**

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**Utah**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
Salt Lake City, UT



# Utah

## Basin Outlook Report

### February 1, 1999



# Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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*For more water supply and resource management information, contact:*

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Vane O. Campbell, District Conservationist, 340 N. 600 W., Richfield, UT 84701 - Phone: (435) 896-6441

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **STATE OF UTAH GENERAL OUTLOOK**

**Feb 1, 1999**

## **SUMMARY**

January brought much needed storms to parts of Utah. The general "La Nina" signature or pattern of low snowpacks in the south and normal to slightly above in the north appears to be occurring this year. Snowpacks in northern Utah increased significantly (20%-30%) from the dismal numbers of January. This trend of increasing snowpacks (5%-15%) extended down to the central part of Utah. In southern Utah, the trend reverses and snowpacks decreased, percentagewise, relative to last month. To put it succinctly, northern Utah got a large snowpack increase whereas southern Utah received very little. Snowpacks in northern Utah range from 73% to 87% of average and in the south from 65% to 79% of average. Another feature of typical "La Nina" years is that they tend to be warmer than normal and this is again reflected in the distribution of snowpack. Snowpacks below 8000 feet elevation are currently only 30% to 40% of average in southern Utah. Geographically, this represents a large portion of the snowpack and could have negative impacts on snowmelt runoff. Precipitation during January was above normal in the north (110%-130%) and below normal in the south (55%-110%). Seasonal precipitation, (Oct-Jan) is pretty close to 90% statewide. Reservoir storage is generally in excellent condition, most at 70% of capacity or higher. Most operators are following a conservative strategy in anticipation of a marginal runoff year. Streamflow forecasts call for below normal April-July runoff.

## **SNOWPACK**

February first snowpacks in Utah, as measured by the NRCS SNOTEL system, are below average at 80% of normal, up 15% relative to last month and about 78% of last year. Snowpacks range from 65% on the Virgin to 87% of average on the Bear and Uintah Basin. One small, very isolated, bright spot is the Escalante Basin which currently has 111% of average, down 18% relative to last month. The southern areas are not expected to have a great snowpack season given the current pattern. Overall, current snowpack conditions in the north have improved significantly and, in the south, conditions have declined somewhat since last month.

## **PRECIPITATION**

Mountain precipitation in January, as measured by the NRCS SNOTEL system, was above normal in the north (111% - 131%) and below normal in the south (54% to 98%). This brings the seasonal accumulation (Oct-Apr) to 92% of average statewide.

National Weather Service figures indicate that January precipitation was above normal in the north: Logan - 299%, Randolph - 490%, Trenton - 308%. In southern and eastern

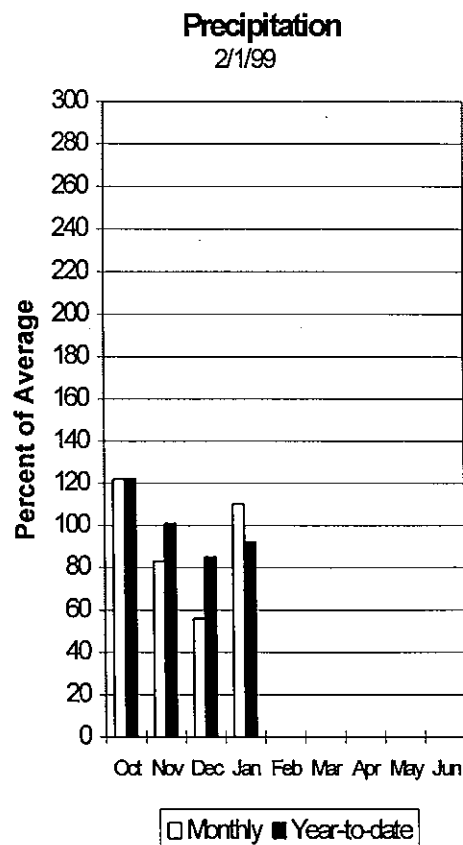
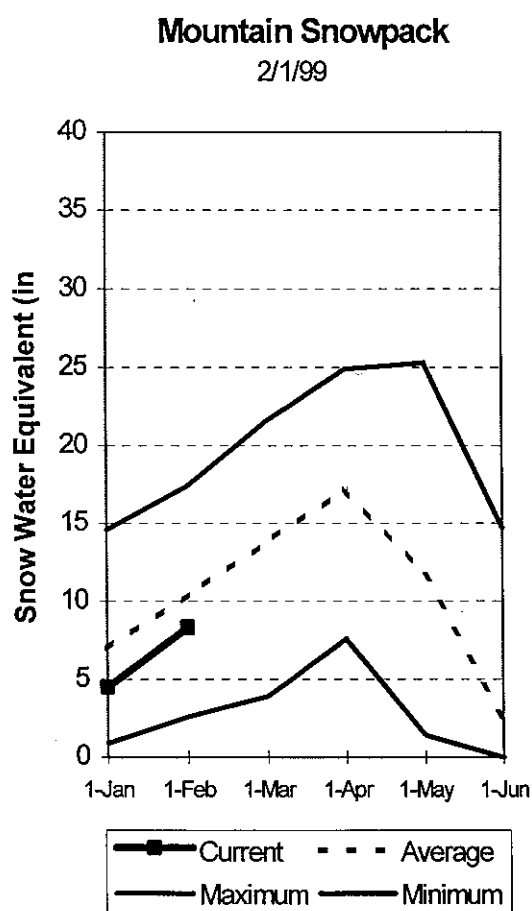
Utah, precipitation was below to much below normal: Roosevelt - 43%, Duchesne - 47% and Capitol Reef - 0% of average.

## RESERVOIRS

Storage in 41 of Utah's key irrigation reservoirs is at 86% of capacity. Many reservoirs are retaining as much water as possible in anticipation of a poor runoff season.

## STREAMFLOW

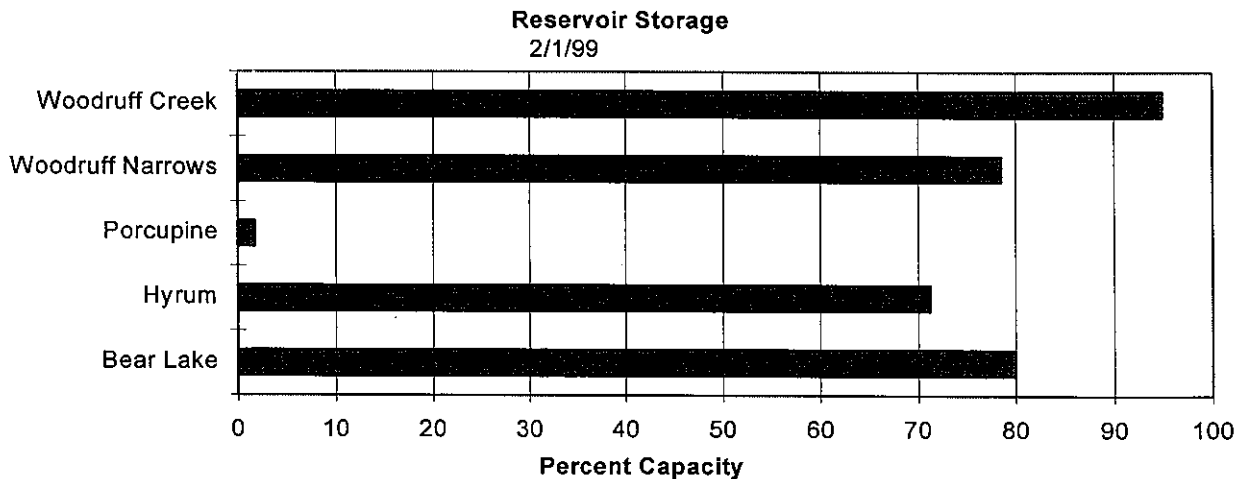
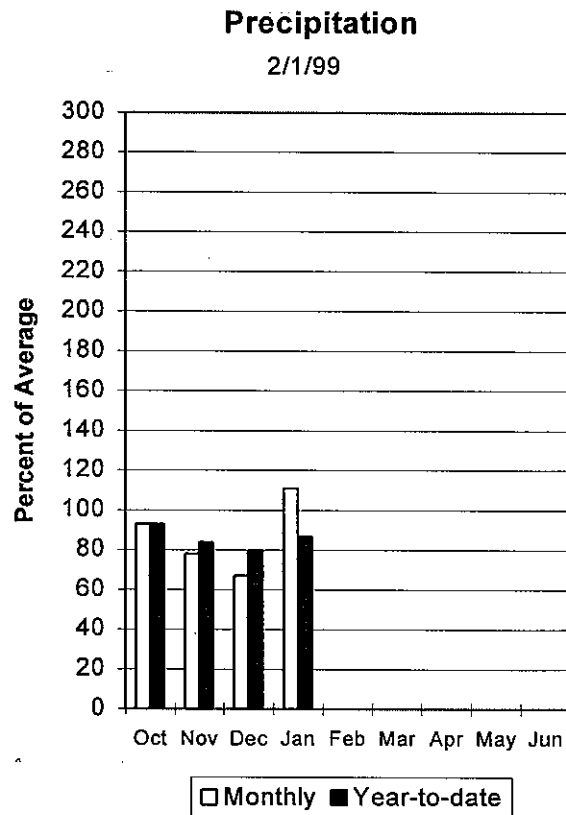
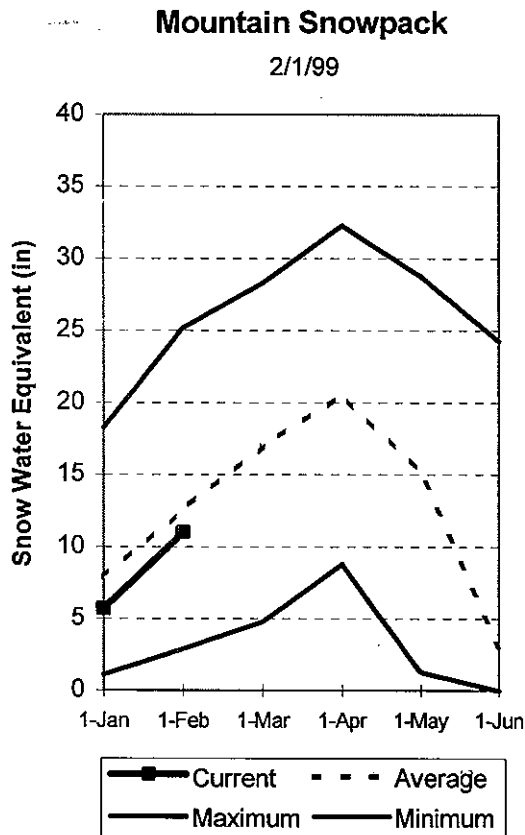
Snowmelt streamflows are expected to be below average throughout Utah. In general, runoff conditions are poor, however reservoir storage is in excellent shape. Given current snowpacks and anticipated conditions, direct streamflow water users should prepare for a marginal season, especially in southern Utah.



## Bear River Basin

### Feb 1, 1999

Snowpacks on the Bear River Basin have rebounded but remain below average at 87% of normal, up 15% relative to last month and about 80% percent of last year. Specific sites range from 68% to 111% of normal. Given current conditions, there is only a 1 in 5 chance of average or better snowpack on April first. January precipitation was above normal at 111%, which brings the seasonal accumulation (Oct-Jan) to 87% of average. Reservoir storage is excellent at 79% capacity, with small reservoirs, except Porcupine which is under repair, essentially full. Water users relying on direct streamflow could have a marginal season.



BEAR RIVER BASIN  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Bear R nr UT-WY State Line	APR-JUL	65	79	90	78	103	125	115
BEAR R nr Woodruff, UT	APR-JUL	59	85	108	73	138	198	149
BIG CK nr Randolph	APR-JUL	0.08	1.38	2.90	76	4.42	6.65	3.80
BEAR R nr Randolph, UT	APR-JUL	10.0	53	83	70	113	156	118
SMITHS FK nr Border, WY	APR-JUL	59	75	89	87	105	135	102
THOMAS FK nr WY-ID State Line	APR-JUL	12.7	18.6	24	73	31	45	33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	99	162	205	71	248	311	288
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	5.6	7.3	8.8	72	10.6	13.9	12.2
CUB R nr Preston	APR-JUL	26	34	40	85	46	54	47
L BEAR RIVER at Paradise, UT	APR-JUL	17.1	23.2	28.5	64	35.0	47.5	44.6
LOGAN R nr Logan	APR-JUL	60	77	92	86	110	142	107
BLACKSMITH Fk nr Hyrum	APR-JUL	27	34	41	76	49	63	54

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of January					BEAR RIVER BASIN Watershed Snowpack Analysis - February 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	1136.4	1118.9	978.0	BEAR RIVER, UPPER (abv Ha	6	85	85
HYRUM	15.3	10.9	11.1	10.3	BEAR RIVER, LOWER (blw Ha	7	76	89
PORCUPINE	11.3	0.0	11.1	2.9	LOGAN RIVER	4	75	96
WOODRUFF NARROWS	57.3	45.0	46.0	---	RAFT RIVER	0	.0	0
WOODRUFF CREEK	4.0	3.8	4.0	---	BEAR RIVER BASIN	13	80	87

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

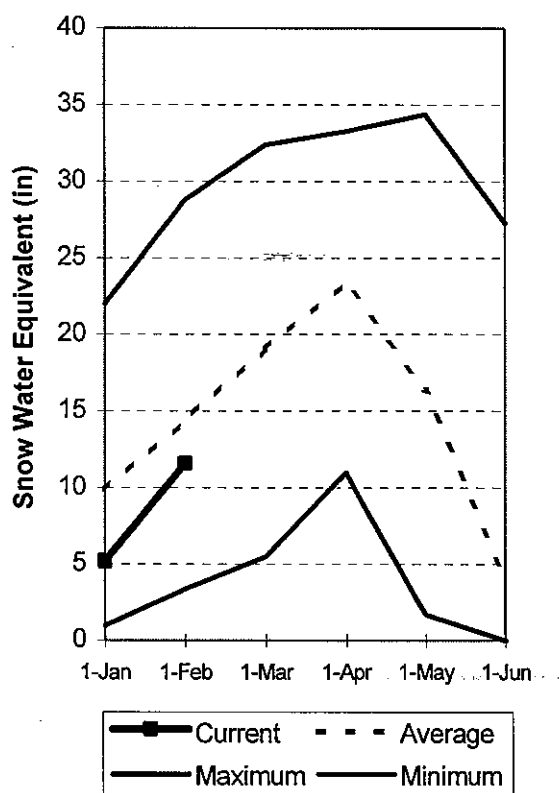
# Weber and Ogden River Basins

Feb 1, 1999

Snowpack on the Weber and Ogden Watersheds is at 80% of average, up 27% relative to last month but still just 91% of last year. Individual sites range from 65% to near 101% of average. Given current conditions, there is only a 13% chance of getting average snowpacks or higher by April first. Precipitation during January was much above normal at 131% of average, bringing the seasonal accumulation (Oct-Jan) to 91% of average. Reservoir storage on the Weber system is at 76% of capacity. Lost creek is still empty due to repairs. Water users on direct streamflow should prepare for a marginal runoff year.

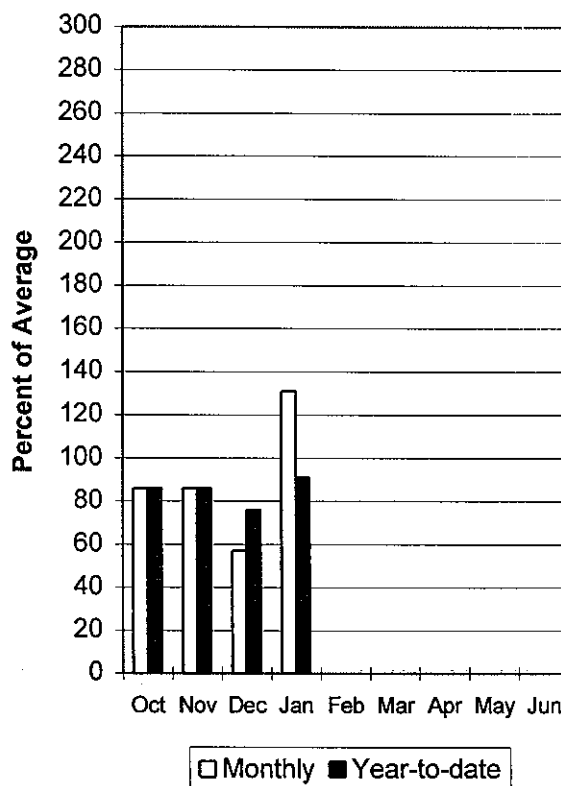
## Mountain Snowpack

2/1/99



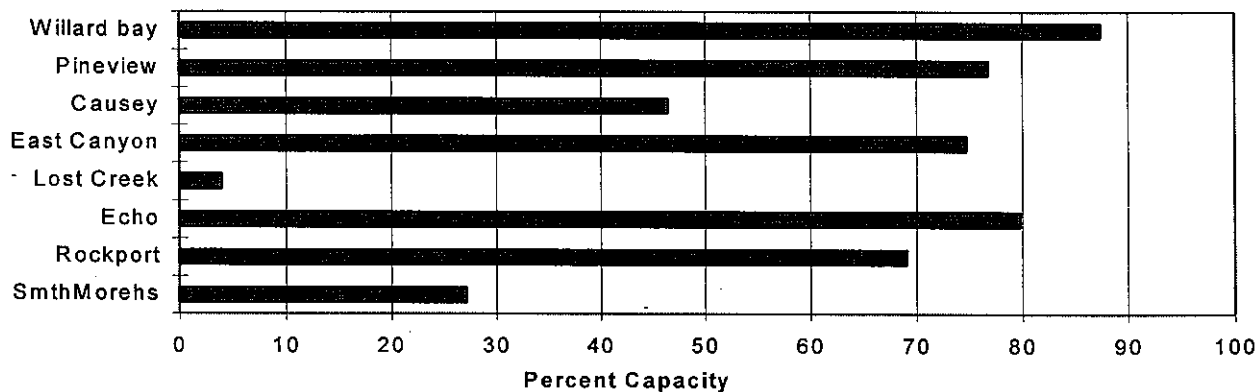
## Precipitation

2/1/99



## Reservoir Storage

2/1/99



WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)	10% (1000AF)
SMITH AND MOREHOUSE CK nr Oakley	APR-JUN	10.4	17.3	22	73	27	34	30		
WEBER R nr Oakley	APR-JUL	59	80	95	78	110	131	122		
ROCKPORT RESERVOIR inflow	APR-JUL	50	80	100	75	120	150	134		
CHALK CK at Coalville, Ut	APR-JUL	7.8	24	35	80	46	62	44		
WEBER R nr Coalville, Ut	APR-JUL	56	87	108	79	129	160	136		
ECHO RESERVOIR Inflow	APR-JUL	60	105	135	77	165	210	176		
LOST CK Res Inflow	APR-JUL	0.1	7.8	13.0	76	18.2	26	17.2		
E CANYON CK nr Morgan	APR-JUL	10.3	18.5	24	80	30	38	30		
WEBER R at Gateway	APR-JUL	196	237	265	76	293	334	347		
S FORK OGDEN R nr Huntsville	APR-JUL	25	40	50	79	60	75	63		
PINEVIEW RESERVOIR Inflow	APR-JUL	37	71	95	77	119	153	124		
WHEELER CK nr Huntsville	APR-JUL	2.66	4.05	5.00	81	5.95	7.34	6.20		

WEBER & OGDEN WATERSHEDS in Utah  
Reservoir Storage (1000 AF) - End of January

WEBER & OGDEN WATERSHEDS in Utah  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CAUSEY	7.1	3.3	7.1	2.2	OGDEN RIVER	4	62	76
EAST CANYON	49.5	38.8	40.2	34.7	WEBER RIVER	8	81	86
ECHO	73.9	59.0	62.9	45.8	WEBER & OGDEN WATERSHEDS	12	73	82
LOST CREEK	22.5	0.9	2.5	13.1				
PINEVIEW	110.1	84.6	53.0	49.6				
ROCKPORT	60.9	42.1	39.3	31.9				
WILLARD BAY	215.0	187.9	187.6	110.6				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
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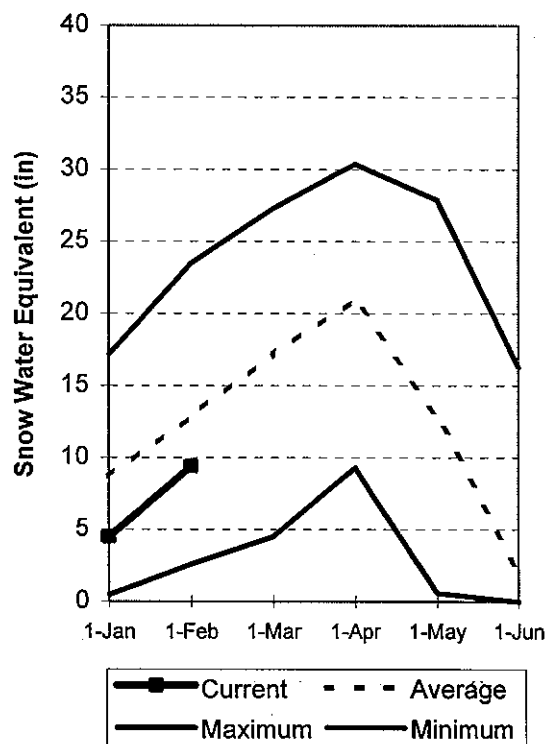
# Utah Lake, Jordan River & Tooele Valley Basins

Feb 1, 1999

Snowpacks over these watersheds are below average at 76% of normal, up 25% relative to last month but still just 80% of last year. Individual sites range from 56% to 91% of average. Given current conditions, there is only a 16% chance of getting average or higher snowpacks by April first. Precipitation during January was above normal at 125% , bringing the seasonal accumulation (Oct-Jan) to 91% of average. Reservoir storage is at 94% of capacity. Water supply conditions are below normal and below average runoff is expected. Water users on direct streamflow should prepare for a marginal runoff season.

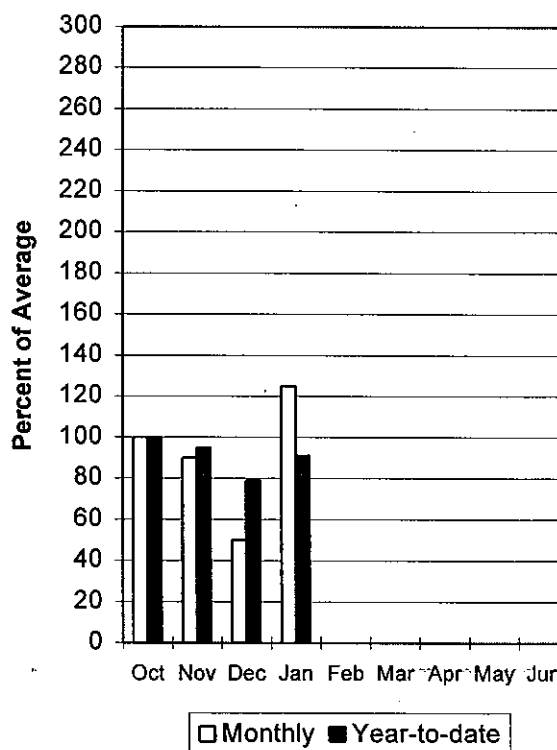
## Mountain Snowpack

2/1/99



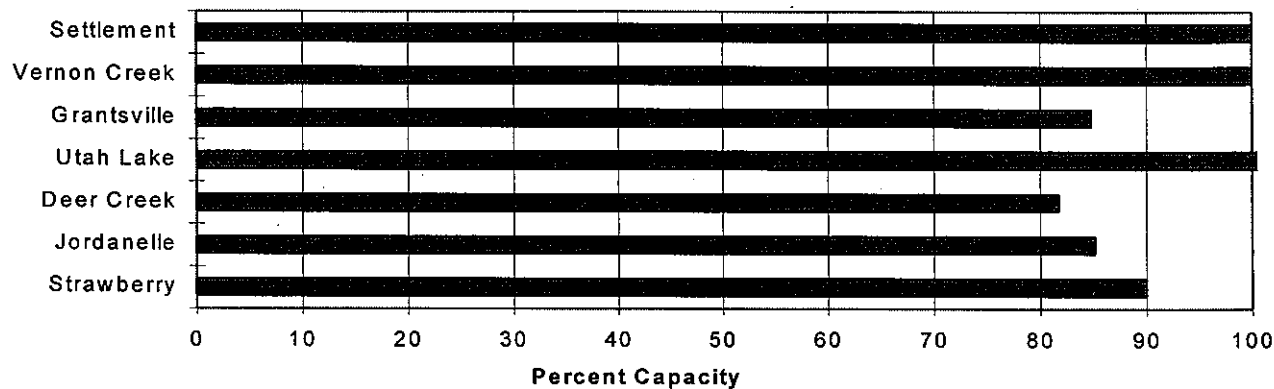
## Precipitation

2/1/99



## Reservoir Storage

2/1/99



UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		90%		Chance Of Exceeding *		30%		30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
PAYSON CK nr Payson	APR-JUL	1.98	2.17	3.30	75	4.43	6.82	4.40
SPANISH FORK nr Castilla	APR-JUL	8.1	32	48	65	72	113	74
HOBBLE CK nr Springville	APR-JUL	3.9	10.6	14.0	75	17.4	24	18.8
PROVO R nr Hailstone	APR-JUL	37		78	72		119	109
PROVO R below Deer Creek Dam	APR-JUL	20		89	70		157	128
AMERICAN FORK nr American Fk.	APR-JUL	12.2	18.8	23	72	27	34	32
UTAH LAKE inflow	APR-JUL	49		240	74		431	324
L COTTONWOOD CRK nr SLC	APR-JUL	24	31	35	90	39	46	39
BIG COTTONWOOD CRK nr SLC	APR-JUL	24	31	35	92	39	46	38
PARLEY'S CK nr SLC	APR-JUL	1.4	7.7	11.5	72	15.3	22	15.9
MILL CK nr SLC	APR-JUL	2.47	4.49	5.70	88	6.91	8.90	6.50
DELL FK nr SLC	APR-JUL	2.70	3.58	5.20	73	6.82	9.73	7.10
EMIGRATION CK nr SLC	APR-JUL	0.50	2.31	3.30	79	4.71	7.01	4.20
CITY CK nr SLC	APR-JUL	1.66	4.49	6.20	75	7.91	10.71	8.30
VERNON CK nr Vernon (in Acre Feet)	APR-JUL	483	690	880	66	1122	1603	1340
SETTLEMENT CK nr Tooele (in Acre Fee	APR-JUL	552	1041	1600	70	2460	4637	2300
S WILLOW CK nr Grantsville	APR-JUL	0.16	1.25	2.20	71	3.15	4.56	3.10

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Reservoir Storage (1000 AF) - End of January

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	122.4	138.9	94.3	PROVO RIVER & UTAH LAKE	7	79	69
GRANTSVILLE	3.3	2.8	2.5	---	PROVO RIVER	4	89	74
SETTLEMENT CREEK	1.0	1.0	0.9	0.5	JORDAN RIVER & GREAT SALT	5	82	76
STRAWBERRY-ENLARGED	1105.9	995.2	985.7	---	TOOELE VALLEY WATERSHEDS	4	64	75
UTAH LAKE	870.9	916.1	888.5	648.6	UTAH LAKE, JORDAN RIVER &	16	76	73
VERNON CREEK	0.6	0.6	0.6	---				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



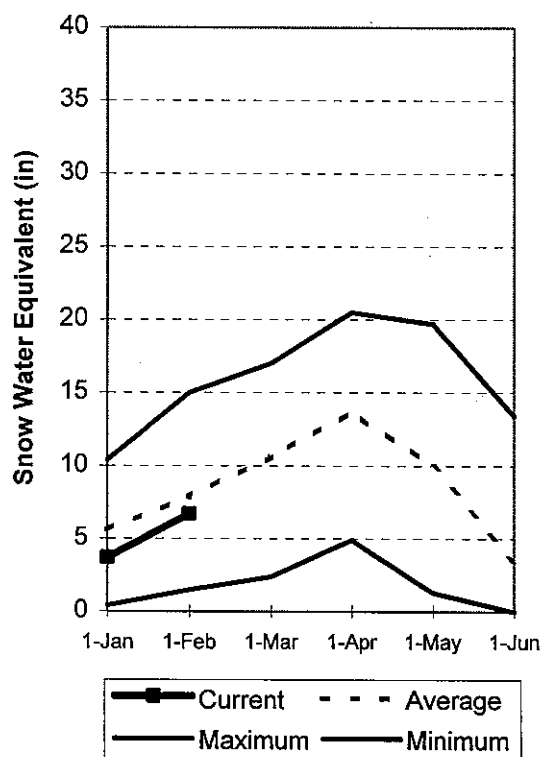
## Uintah Basin and Dagget SCD's

Feb 1, 1999

Snowpacks across the Uintah Basin and North Slope areas are below average at 87%, up 20% relative to last month. The North Slope is at 93% and the Uintah Basin ranges from 73% to 107% of average. Snowpacks in these areas are 88% of last year. Given these conditions, there is only near 1 chance in 10 of getting an average or higher snowpack by April first. Precipitation during January was 121% of normal, bringing the seasonal accumulation (Oct-Jan) to 96% of average. Reservoir storage is excellent at 90% of capacity. Water supply conditions are slightly below normal.

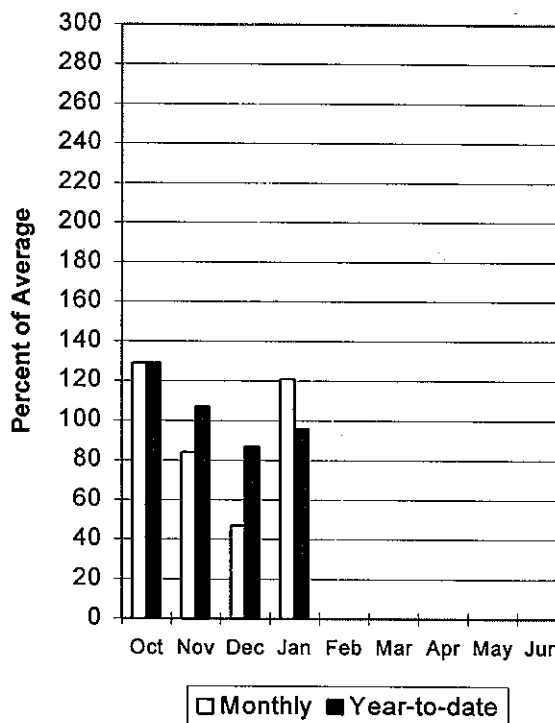
### Mountain Snowpack

2/1/99



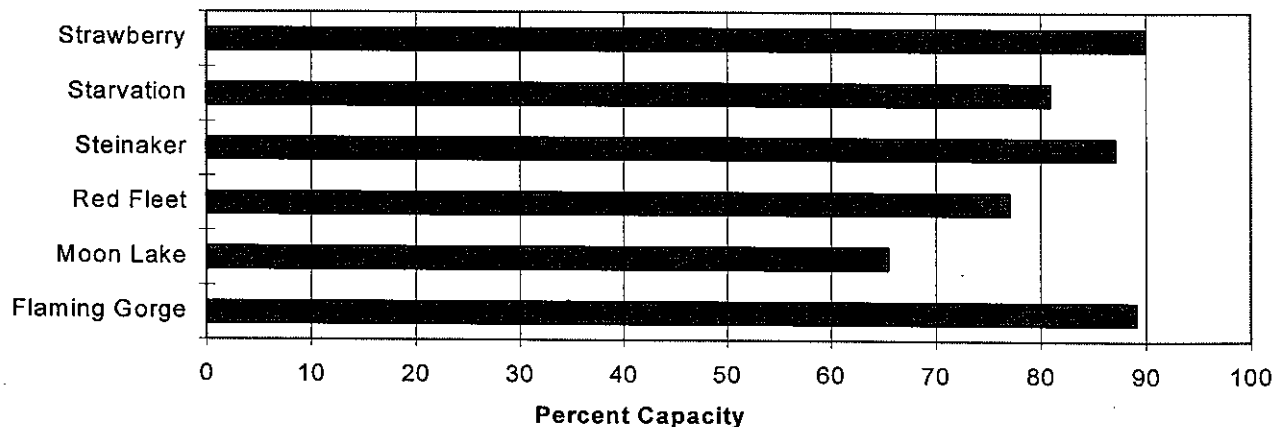
### Precipitation

2/1/99



### Reservoir Storage

2/1/99



UINTAH BASIN & DAGGET SCD'S  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
EF of Smiths Fork nr Robertson	APR-JUL	18.7	22	25	83	28	33	30
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	10.8	15.1	18.0	91	21	25	19.8
Ashley Creek nr Vernal	APR-JUL	22	39	50	98	61	78	51
WF DUCHESNE RIVER nr Hanna	APR-JUL	9.8	14.1	17.5	67	21	27	26
DUCHESNE R nr Tabiona	APR-JUL	53	69	80	76	91	107	105
ROCK CK nr Mountain Home	APR-JUL	62	76	85	90	95	108	94
UPPER STILLWATER RESV inflow	APR-JUL	45	60	71	88	82	97	81
DUCHESNE R abv Knight Diversion	APR-JUL	99	135	160	85	185	221	189
STRAWBERRY RES nr Soldier Springs	APR-JUL	19.9	31	40	68	50	67	59
CURRENT CREEK RESV Inflow	APR-JUL	6.3	10.6	13.5	64	16.4	21	21
STARVATION RESERVOIR inflow	APR-JUL	28	59	80	68	101	132	117
MOON LAKE Inflow	APR-JUL	39	51	60	87	69	81	69
Yellowstone River nr Altonah	APR-JUL	32	48	58	89	68	84	65
DUCHESNE R at Myton	APR-JUL	66	137	185	70	233	304	263
Whiterocks River nr Whiterocks	APR-JUL	18.7	39	52	90	66	85	58
UINTA R nr Neola	APR-JUL	37	60	76	89	92	115	85
DUCHESNE R nr Randlett	APR-JUL	98	129	230	70	331	480	328

UINTAH BASIN & DAGGET SCD'S  
Reservoir Storage (1000 AF) - End of January

UINTAH BASIN & DAGGET SCD'S  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FLAMING GORGE	3749.0	3341.0	3279.0	---	UPPER GREEN RIVER in UTAH	6	85	92
MOON LAKE	49.5	32.4	33.0	29.1	ASHLEY CREEK	2	97	80
RED FLEET	25.7	19.8	20.4	---	BLACK'S FORK RIVER	2	83	91
STEINAKER	33.4	29.1	32.2	19.7	SHEEP CREEK	1	62	111
STARVATION	165.3	133.8	133.0	113.0	DUCHESNE RIVER	11	90	85
STRAWBERRY-ENLARGED	1105.9	995.2	985.7	---	LAKE FORK-YELLOWSTONE CRE	4	87	90
					STRAWBERRY RIVER	4	87	73
					UINTAH-WHITEROCKS RIVERS	2	118	107
					UINTAH BASIN & DAGGET SCD	17	89	87

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

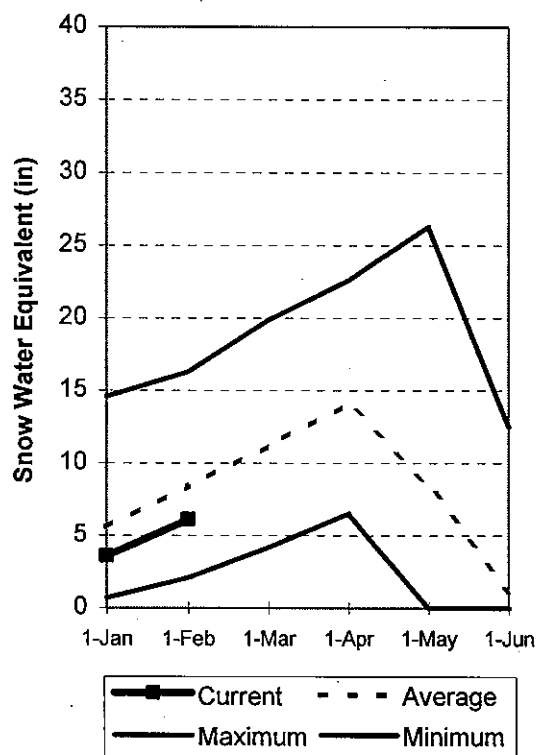
# Carbon, Emery, Wayne, Grand and San Juan Co.

Feb 1, 1999

Snowpacks in this region are at 73% of average, up 9% relative to last month but still only 85% of last year. Individual sites range from 58% to 120% of average. Given current conditions, there is roughly a 10% chance of getting an average or higher snowpack by April first. Precipitation during January was near average at 98%, bringing the seasonal accumulation (Oct-Jan) to 92% of normal. Reservoir storage is in excellent shape at 71% of capacity. General water supply conditions are below normal. Water users on direct streamflow should prepare for a poor runoff season.

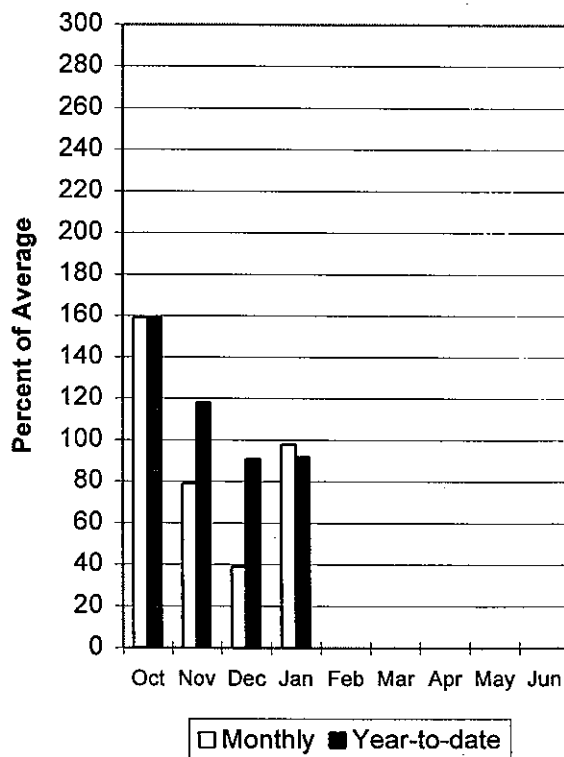
## Mountain Snowpack

2/1/99



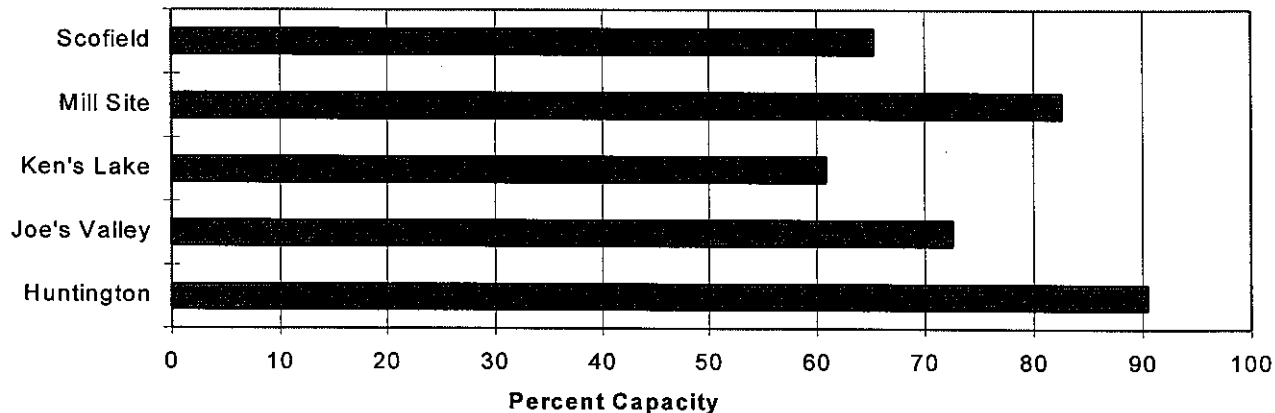
## Precipitation

2/1/99



## Reservoir Storage

2/1/99



CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions =====		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)	Chance Of Exceeding *	30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	4.1	7.2	9.2	79	11.2	14.3	11.7
Scofield Reservoir inflow	APR-JUL	7.0	24	30	68	36	68	44
White River blw Tabbyune Creek	APR-JUL	1.1	8.0	11.0	59	14.5	21	18.7
Green River at Green River, UT	APR-JUL	1591	2281	2750	87	3219	3909	3151
Electric Lake inflow	APR-JUL	4.7	7.5	10.0	66	12.9	18.2	15.1
HUNTINGTON CK nr Huntington	APR-JUL	7.0	21	28	68	35	52	41
JOE'S VALLEY RESV Inflow	APR-JUL	13.3	28	38	72	48	63	53
Ferron Creek nr Ferron	APR-JUL	15.9	22	27	69	32	41	39
Colorado River nr Cisco	APR-JUL	1888	2877	3550	86	4223	5212	4132
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	1.26	1.96	3.24	54	4.52	6.40	6.00
Indian Creek abv Cottonwood Creek	MAR-JUL	0.43	0.74	1.11	44	2.12	3.61	2.55
Seven Mile Creek nr Fish Lake	APR-JUL	1.95	3.19	5.00	77	6.81	9.49	6.50
Muddy Creek nr Emery	APR-JUL	5.7	8.4	13.0	66	17.6	24	19.6
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	1.03	1.64	2.69	44	4.33	6.75	6.07
San Juan River nr Bluff	APR-JUL	357	774	965	84	1156	1578	1152

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of January

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	3.8	3.3	2.3	PRICE RIVER	3	72	67
JOE'S VALLEY	61.6	44.7	47.3	43.6	SAN RAFAEL RIVER	3	79	72
KEN'S LAKE	2.3	1.4	1.9	---	MUDDY CREEK	1	95	67
MILL SITE	16.7	13.8	16.9	3.5	FREMONT RIVER	3	151	98
SCOFIELD	65.8	43.0	42.5	31.3	LASAL MOUNTAINS	1	71	58
					BLUE MOUNTAINS	1	72	61
					WILLOW CREEK	1	66	83
					CARBON, EMERY, WAYNE, GRA	13	85	73

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

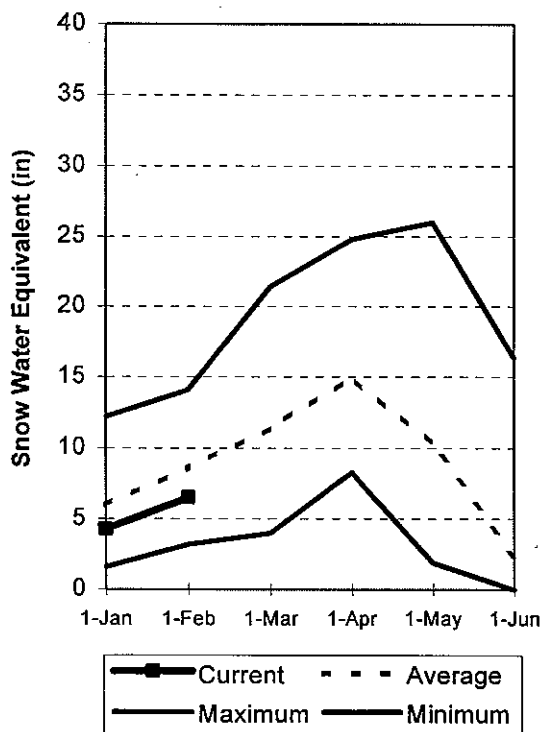
## Sevier and Beaver River Basins

Feb 1, 1999

Snowpacks on the Sevier River Basin are below normal at 79% of average, up slightly from last month but just 81% of last year. The East Fork of the Sevier is the highest at 95% while the lower Sevier is lowest at 73% of normal. Individual sites range from 13% to 106% of average. La Nina years are typically not kind to southern Utah and these numbers have little chance of increasing and could get worse! Precipitation during January was below average at 76% of normal, bringing the seasonal accumulation (Oct-Jan) to 93% of average. Reservoir storage is in excellent condition at 92% of capacity. General water supply conditions are poor. Those on direct streamflow should prepare for a marginal year.

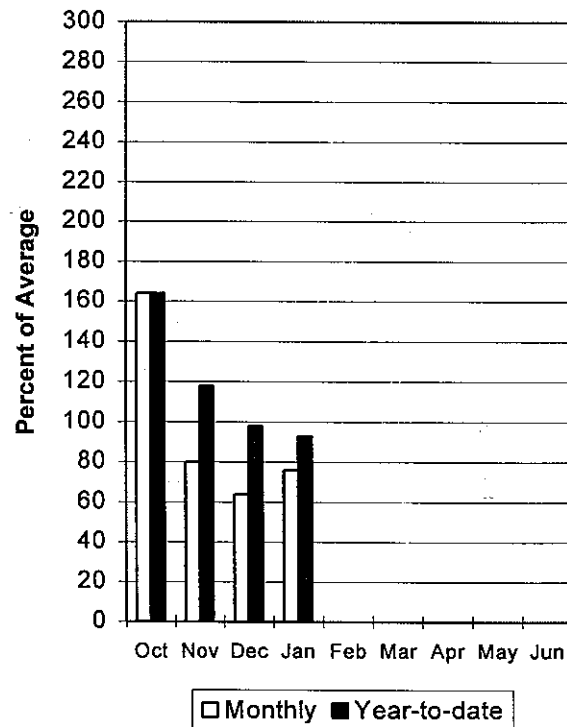
### Mountain Snowpack

2/1/99



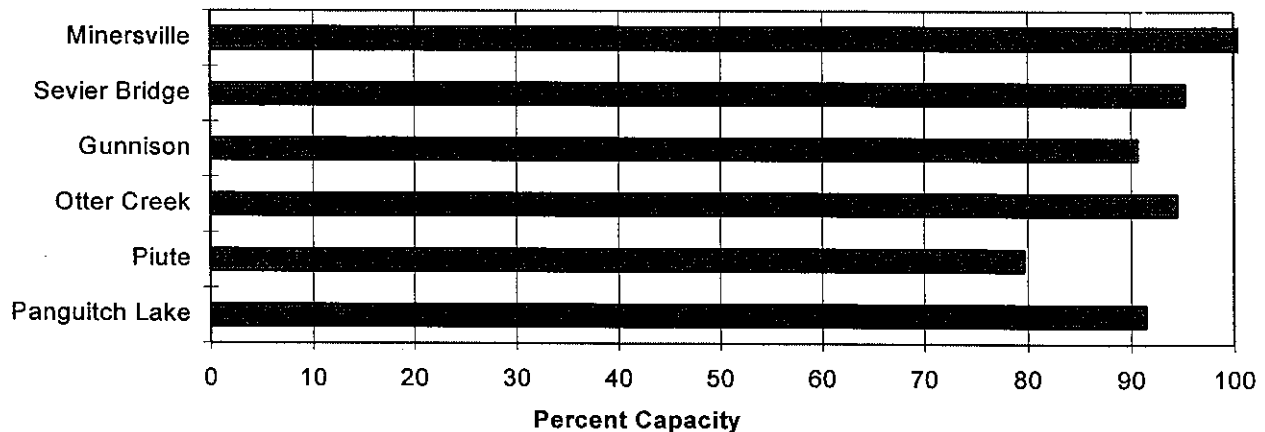
### Precipitation

2/1/99



### Reservoir Storage

2/1/99



**SEVIER & BEAVER RIVER BASINS**  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding *		30% (1000AF)	10% (1000AF)	
				50% (Most Probable) (1000AF)	(% AVG.)			
SEVIER R at Hatch	APR-JUL	15.1	34	44	82	54	73	54
SEVIER R nr Circleville	APR-JUL	28	48	62	83	76	96	75
SEVIER R nr Kingston	APR-JUL	31	55	69	83	83	107	83
ANTIMONY CK nr Antimony	APR-JUL	3.18	5.18	6.20	84	7.22	9.18	7.40
E F SEVIER R nr Kingston	APR-JUL	0.9	17.1	27	90	37	53	30
SEVIER R blw Piute Dam	APR-JUL	26		95	83		163	115
CLEAR CK nr Sevier	APR-JUL	4.4	12.2	17.0	81	22	30	21
SALINA CK at Salina	APR-JUL	1.1	4.2	11.6	66	21	37	17.6
PLEASANT CK nr Pleasant	APR-JUL	2.63	4.47	5.50	65	6.53	8.41	8.50
EPHRAIM CK nr Ephraim	APR-JUL	1.9	5.6	7.6	60	9.6	13.4	12.6
SEVIER R nr Gunnison	APR-JUL	65	127	176	74	250	397	239
CHICKEN CK nr Levan	APR-JUL	1.16	2.00	2.90	62	4.21	7.26	4.70
OAK CK nr Oak City (Acre Feet)	APR-JUL	602	862	1100	62	1404	2010	1777
BEAVER R nr Beaver	APR-JUL	15.2	18.4	21	81	24	29	26
MINERSVILLE RESERVOIR Inflow	APR-JUL	5.8	9.4	13.0	78	18.0	29	16.7

**SEVIER & BEAVER RIVER BASINS**  
Reservoir Storage (1000 AF) - End of January

**SEVIER & BEAVER RIVER BASINS**  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNNISON	20.3	18.4	19.3	11.7	UPPER SEVIER RIVER (south	7	98	82
MINERSVILLE (RkyFd)	23.3	24.7	20.1	11.2	EAST FORK SEVIER RIVER	2	121	101
OTTER CREEK	52.5	49.6	49.7	27.5	SOUTH FORK SEVIER RIVER	5	90	74
PIUTE	71.8	57.2	69.5	36.9	LOWER SEVIER RIVER (inclu	6	70	73
SEVIER BRIDGE	236.0	224.8	209.0	101.1	BEAVER RIVER	2	72	89
PANGUITCH LAKE	22.3	20.4	14.6	---	SEVIER & BEAVER RIVER BAS	15	80	79

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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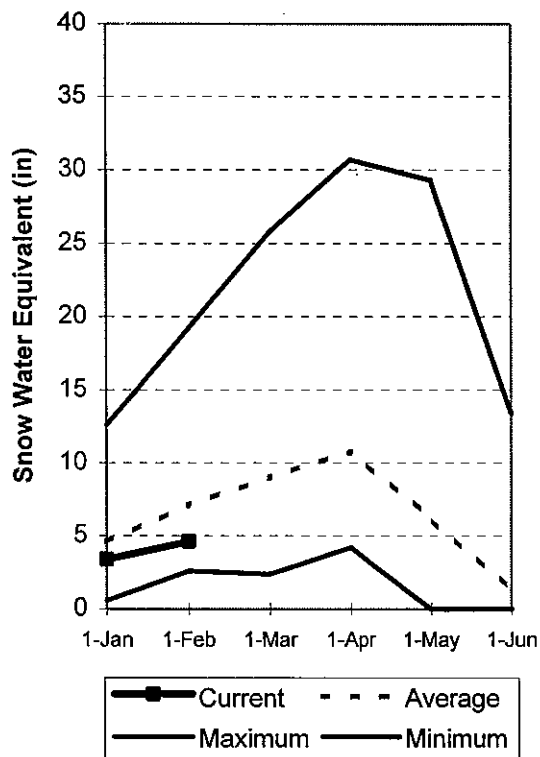
## E. Garfield, Kane, Washington, & Iron co.

### Feb 1, 1999

Snowpacks in this region are below normal at 65% of average, down 10% relative to last month and about 84% of last year. Individual sites range from 13% to 120% of average. La Nina years are typically not kind to southern Utah and these figures could get worse! Precipitation during January was much below normal at 54% of average, bringing the seasonal accumulation (Oct-Jan) to 88% of normal. Reservoir storage is in excellent shape at 85% of capacity. General water supply conditions are below average. Water users on direct streamflow should prepare for a poor runoff season.

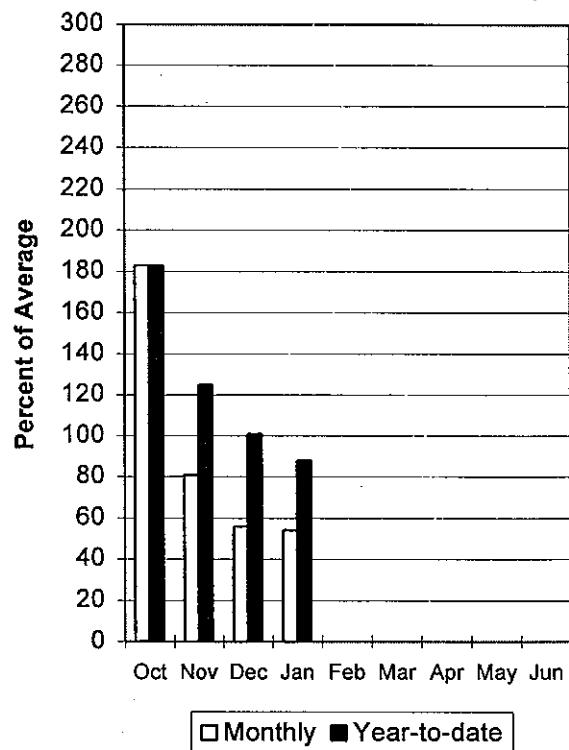
#### Mountain Snowpack

2/1/99



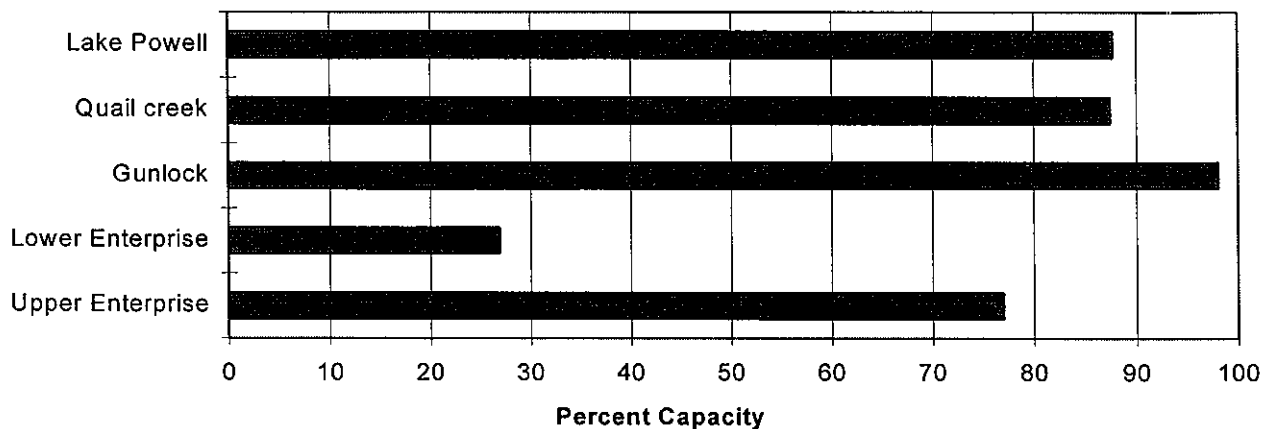
#### Precipitation

2/1/99



#### Reservoir Storage

2/1/99



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - February 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Lake Powell inflow	APR-JUL	3623	5455	6700	87	7945	9777	7735
Virgin River nr Virgin	APR-JUL	13.2	21	28	42	50	71	66
Virgin River nr Hurricane	APR-JUL	10.1	21	30	42	53	85	72
Santa Clara River nr Pine Valley	APR-JUL	0.80	1.45	2.50	47	6.31	8.00	5.30

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Reservoir Storage (1000 AF) - End of January

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Watershed Snowpack Analysis - February 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK	10.4	10.2	8.9	---	VIRGIN RIVER	5	74	60
LAKE POWELL	24322.0	21344.0	21102.0	---	PAROWAN	2	94	81
QUAIL CREEK	40.0	35.0	35.0	---	ENTERPRISE TO NEW HARMONY	2	33	24
UPPER ENTERPRISE	10.0	7.7	2.5	---	COAL CREEK	2	81	65
LOWER ENTERPRISE	2.6	0.6	0.6	---	ESCALANTE RIVER	2	165	111
					E. GARFIELD, KANE, WASHIN	9	84	65

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.



SNOW COURSE DATA  
FOR THE STATE OF UTAH  
As of February 1999

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
AGUA CANYON SNOTEL	8900	2/01	-	4.4	4.2	5.5	DRY FORK SNOTEL	7160	2/01	-	-	12.6	10.5
ALTA CENTRAL	8800	1/28	73	19.4	24.3	24.6	EAST WILLOW CREEK SN	8250	2/01	-	8.1	5.3	4.2
BEAVER DAMS SNOTEL	8000	2/01	-	4.1	5.2	7.8	FARMINGTON CN SNOTEL	8000	2/01	-	-	26.6	17.4
BEAVER DIVIDE SNOTL	8280	2/01	-	6.4	7.6	7.6	FARMINGTON CANYON I.	6950	-	-	-	-	-
BEN LOMOND PK SNOTL	8000	2/01	-	17.2	32.2	24.2	FARNSWORTH LK SNOTEL	9600	2/01	-	10.5	10.7	11.4
BEN LOMOND TR SNOTL	6000	2/01	-	10.3	19.8	14.9	FISH LAKE	8700	-	-	-	-	-
BEVAN'S CABIN	6450	-	-	-	-	-	FIVE POINTS LAKE SNO	10920	2/01	-	8.5	9.5	10.3
BIG FLAT SNOTEL	10290	2/01	-	9.4	11.9	10.7	FRANCES FLATS	6700	2/03	53	12.8	15.3	13.1
BIRCH CROSSING	8100	-	-	-	-	-	G.B.R.C. HEADQUARTER	8700	-	-	-	-	-
BLACK FLAT-U.M. CK S	9400	2/01	-	4.3	3.6	6.0	G.B.R.C. MEADOWS	10000	-	-	-	-	-
BLACK'S FORK GS-EF	9340	-	-	-	-	-	GARDEN CITY SUMMIT	7600	-	-	-	-	-
BLACK'S FORK JUNCTN	8930	-	-	-	-	-	GEORGE CREEK	8840	-	-	-	-	-
BOX CREEK SNOTEL	9800	2/01	-	7.5	7.5	7.6	GOOSEBERRY R.S.	8400	-	-	-	-	-
BRIAN HEAD	10000	-	-	-	-	-	GOOSEBERRY R.S. SNOT	7900	2/01	-	3.8	4.2	6.0
BRIGHTON SNOTEL	8750	2/01	-	11.7	14.1	14.2	HARDSCRABLE SNOTEL	7250	2/01	-	8.7	14.1	13.3
BRIGHTON CABIN	8700	2/01	64	15.2	18.5	17.2	HARRIS FLAT SNOTEL	7700	2/01	-	1.7	3.0	5.2
BROWN DUCK SNOTEL	10600	2/01	-	10.9	10.4	11.8	HAYDEN FORK SNOTEL	9100	2/01	-	8.4	8.7	10.2
BRYCE CANYON	8000	1/27	0	0.0	2.2	3.2	HENRY'S FORK	10000	-	-	-	-	-
BUCK FLAT SNOTEL	9800	2/01	-	8.6	11.4	10.3	HEWINTA SNOTEL	9500	2/01	-	5.8	7.9	6.2
BUCK PASTURE	9700	-	-	-	-	-	HICKERSON PARK SNOTE	9100	2/01	-	3.9	6.3	3.5
BUCKBOARD FLAT	9000	-	-	-	-	-	HIDDEN SPRINGS	5500	2/03	20	4.4	6.1	6.0
BUG LAKE SNOTEL	7950	2/01	-	11.1	14.5	12.9	HOBBLE CREEK SUMMIT	7420	-	-	-	-	-
BURT'S-MILLER RANCH	7900	-	-	-	-	-	HOLE-IN-ROCK SNOTEL	9150	2/01	-	4.3	4.6	3.2
CAMP JACKSON SNOTEL	8600	2/01	-	4.4	6.1	7.2	HORSE RIDGE SNOTEL	8260	2/01	-	13.0	15.6	15.5
CASTLE VALLEY SNOTL	9580	2/01	-	6.8	5.9	7.6	HUNTINGTON-HORSESHOE	9800	-	-	-	-	-
CHALK CK #1 SNOTEL	9100	2/01	-	11.7	14.2	14.1	INDIAN CANYON SNOTEL	9100	2/01	-	5.5	5.9	6.1
CHALK CK #2 SNOTEL	8200	2/01	-	9.1	10.4	9.1	JOHNSON VALLEY	8850	-	-	-	-	-
CHALK CREEK #3	7500	-	-	-	-	-	KILFOIL CREEK	7300	-	-	-	-	-
CHEPETA SNOTEL	10300	2/01	-	8.0	7.8	8.1	KILLION CANYON	6300	1/28	29	6.4	7.5	12.9
CITY CREEK	7500	2/03	61	14.6	19.4	18.6	KIMBERLY MINE SNOTEL	9300	2/01	-	8.7	7.9	8.2
CLEAR CK RIDG #1 SNT	9200	2/01	-	7.8	11.4	12.1	KING'S CABIN SNOTEL	8730	2/01	-	5.6	6.3	7.3
CLEAR CK RIDG #2 SNT	8000	2/01	-	5.0	9.4	8.7	KLOLDIKE NARROWS	7400	-	-	-	-	-
CORRAL	8200	-	-	-	-	-	KOLOB SNOTEL	9250	2/01	-	9.1	12.1	11.9
CURRENT CREEK SNOTEL	8000	2/01	-	4.4	4.7	6.8	LAKEFORK #1 SNOTEL	10100	2/01	-	7.2	11.5	7.2
DANIELS-STRAWBERRY S	8000	2/01	-	8.4	8.7	11.4	LAKEFORK BASIN SNOTE	10900	2/01	-	11.7	12.4	13.4
DESERET PEAK	9250	-	-	-	-	-	LAKEFORK MOUNTAIN #3	8400	-	-	-	-	-
DESERET PEAK AM	9250	-	-	-	-	-	LAMBS CANYON	7400	2/02	48	10.8	11.0	10.9
DESERET PEAK SNOTEL	9250	2/01	-	8.9	15.0	10.9	LASAL MOUNTAIN LOWER	8800	-	-	-	-	-
DILL'S CAMP SNOTEL	9200	2/01	-	6.0	6.3	8.9	LASAL MOUNTAIN SNOTE	9850	2/01	-	4.9	6.9	8.4
DONKEY RESERVOIR SNO	9800	2/01	-	6.0	3.4	5.0	LILY LAKE SNOTEL	9050	2/01	-	8.0	8.7	8.1
DRY BREAD POND SNOTL	8350	2/01	-	9.8	12.5	12.5	LITTLE BEAR LOWER	6000	-	-	-	-	-

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
LITTLE BEAR SNOTEL	6550	2/01	-	6.9	13.0	10.1	TROUT CREEK SNOTEL	9400	2/01	-	5.0	4.6	6.0
LITTLE GRASSY SNOTEL	6100	2/01	-	1.2	2.2	2.3	UPPER JOES VALLEY	8900	2/01	-	5.1	7.9	6.8
LONG FLAT SNOTEL	8000	2/01	-	0.7	3.5	5.6	VERNON CREEK SNOTEL	7500	2/01	-	4.9	6.4	10.1
LONG VALLEY JCT. SNT	7500	2/01	-	0.4	2.0	3.2	VIPONT	7670	2/01	-	5.0	6.4	8.6
LOOKOUT PEAK SNOTEL	8200	2/01	-	13.6	18.6	19.5	WEBSTER FLAT SNOTEL	9200	2/01	-	6.9	4.4	6.6
LOST CREEK RESERVOIR	6130	2/01	-	9.1	12.8	11.8	WHITE RIVER #1 SNOTEL	8550	2/01	-	-	-	-
MAMMOTH-COTTONWOOD SNT	8800	2/01	-	6.3	9.8	7.0	WHITE RIVER #3	7400	2/01	-	-	-	-
MERCHANT VALLEY SNOT	8750	2/01	-	10.7	12.8	13.9	WIDTSOE #3 SNOTEL	9500	2/01	-	-	-	-
MIDDLE CANYON	7000	2/01	-	12.9	13.0	13.4	WRIGLEY CREEK	9000	2/01	-	-	-	-
MIDWAY VALLEY SNOTEL	9800	2/01	-	12.9	13.0	13.4	YANKEE RESERVOIR	8700	2/01	-	-	-	-
MILL CREEK	6950	2/02	54	12.9	13.0	13.4							
MILL-D NORTH SNOTEL	8960	2/01	-	13.5	16.9	14.8							
MILL-D SOUTH FORK	7400	1/29	50	11.5	12.5	12.7							
MINING FORK SNOTEL	8000	2/01	-	7.5	14.1	10.2							
MONTE CRISTO SNOTEL	8960	2/01	-	14.8	19.9	17.3							
MOSBY MTN. SNOTEL	9500	2/01	-	7.0	4.9	5.9							
MT. BALDY R.S.	9500	2/01	-	-	-	-							
MUD CREEK #2	8600	2/01	-	-	-	-							
OAK CREEK	7760	2/01	-	-	-	7.9							
PANGUTCH LAKE R.S.	8200	2/02	50	11.9	11.7	12.0							
PARLEY'S CANYON SUM.	7500	2/01	-	8.9	8.6	12.1							
PARLEY'S CANYON SNOT	7500	2/01	-	6.3	8.6	11.3							
PAYSON R.S. SNOTEL	8050	2/01	-	6.3	10.1	10.0							
PICKLE KEG SNOTEL	9600	2/01	-	8.0	16.7	10.4							
PINE CREEK SNOTEL	8800	2/01	-	6.7	7.4	10.9							
RED PINE RIDGE SNOTE	9200	2/01	-	-	-	11.5							
REDDEN MINE LOWER	8500	2/01	-	-	-	8.8							
REES'S FLAT	7300	2/01	-	4.2	5.8	5.3							
ROCK CREEK SNOTEL	7900	2/01	-	10.9	14.0	15.1							
ROCKY BN-SETTLEMT SN	8900	2/01	-	6.2	8.4	8.7							
SEELEY CREEK SNOTEL	10000	2/01	-	14.6	17.2	15.6							
SILVER LAKE (BRIGHT.)	8730	1/29	57	7.2	9.2	8.7							
SMITH MOREHOUSE SNTL	7600	2/01	-	15.0	17.8	22.0							
SNOWBIRD SNOTEL	9700	2/01	-	-	-	-							
SPIRIT LAKE	10300	2/01	-	-	-	-							
SQUAW SPRINGS	9300	2/01	-	8.7	9.6	9.8							
STEEL CREEK PARK SNO	10100	2/01	-	7.9	10.9	11.8							
STILLWATER CAMP	8550	2/01	-	-	-	-							
STRAWBERRY DIVIDE SN	8400	2/01	-	11.6	13.2	12.2							
SUSC RANCH	8200	2/01	-	-	-	-							
TALL POLES	8800	2/01	-	-	-	-							
THAYNES CANYON SNOTL	9200	2/01	-	-	-	-							
THISTLE FLAT	8500	2/01	-	-	-	-							
TIMBERLINE	9100	2/01	-	11.6	12.9	15.1							
TIMPANOGOS DIVIDE SN	8140	2/01	-	24.5	30.3	22.0							
TONY GROVE LK SNOTEL	8400	2/01	-	-	-	-							
TONY GROVE R.S.	6250	2/01	-	-	-	-							
TRIAL LAKE	9960	2/01	-	10.7	12.7	15.4							
TRIAL LAKE SNOTEL	9960	2/01	-	-	-	-							

*Issued by*

**Pearlie S. Reed  
Chief  
Natural Resources Conservation Service  
U.S. Department of Agriculture**

*Released by*

**Phillip J. Nelson  
State Conservationist  
Natural Resources Conservation Service  
Salt Lake City, Utah**

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**Utah**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
Salt Lake City, UT



# Utah

## Basin Outlook Report

### March 1, 1999



# Basin Outlook Reports

## and

## Federal - State - Private

## Cooperative Snow Surveys

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*For more water supply and resource management information, contact:*

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Vane O. Campbell, District Conservationist, 340 N. 600 E., Richfield, UT 84701 - Phone: (435) 896-6441

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### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **STATE OF UTAH GENERAL OUTLOOK**

**Mar 1, 1999**

## **SUMMARY**

Even though the strength of the current La Nina event is relatively weak, the signature with regard to snowpack is very pronounced. Snowpacks in northern Utah are very near to above average on the Bear, Weber and the North Slope of the Uintahs. Snowpacks decrease quickly the further south one goes. Snowpacks on the Virgin are well below average at 59% of normal, the lowest March first snowpack conditions in this region since 1981. Lower elevation (less than 8000 ft) snowpacks in southern Utah are even lower, ranging from 10% to 50% of normal. Geographically, this represents a large portion of the snowpack and could have negative impacts on snowmelt runoff. Given the current climatic trend, these areas will most likely not gain significant snow water equivalent over the next month, and in fact, could easily lose much of what they currently hold. Precipitation during January was above normal in the north (100%-140%) and below normal in the south (50%-75%). Seasonal precipitation, (Oct-Feb) is near 85% in the south and average in the north. Reservoir storage is generally in excellent condition at 86% of capacity. Most reservoirs in southern Utah are at 90% of capacity or higher. Most operators are following a conservative strategy in anticipation of a marginal runoff year. Streamflow forecasts call for near normal April-July runoff in the north and much below average streamflow in the south.

## **SNOWPACK**

March first snowpacks in Utah, as measured by the NRCS SNOTEL system, are near average in northern Utah, up 5% to 10% relative to last month. In the south, snowpacks are below to much below average, 60% to 75% of normal. The southern areas are not expected to have a great snowpack season given the current pattern. Overall, snowpack conditions in the north have improved significantly over the past two months and, in the south, conditions have declined steadily since January. Snowmelt is already in progress in southern Utah, even at some higher elevations. Streamflow in the south will most likely start earlier than normal.

## **PRECIPITATION**

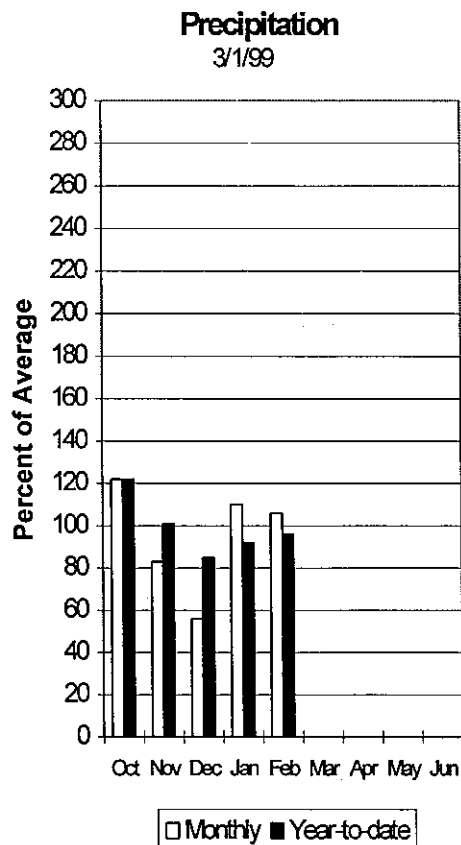
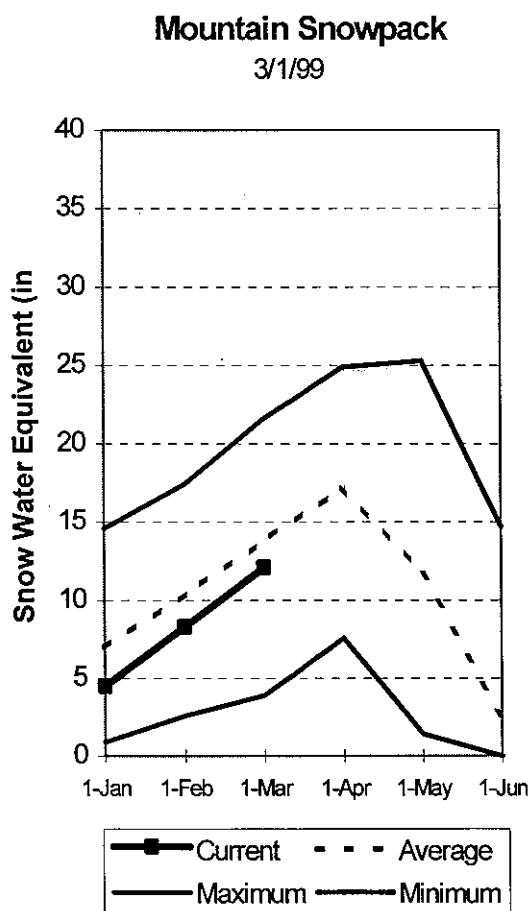
Mountain precipitation in February, as measured by the NRCS SNOTEL system, was much above normal in the north (100% - 140%) and below normal in the south (50% to 75%). This brings the seasonal accumulation (Oct-Mar) to 96% of average statewide.

## **RESERVOIRS**

Storage in 41 of Utah's key irrigation reservoirs is at 86% of capacity. Many reservoirs are retaining as much water as possible in anticipation of a poor runoff season.

## STREAMFLOW

Snowmelt streamflows are expected to be near average in northern Utah and below to much below average in southern Utah. There is a very low probability that water supply conditions in southern Utah will improve significantly and water users should prepare for a poor season. Reservoir storage is in excellent shape statewide, including southern Utah.





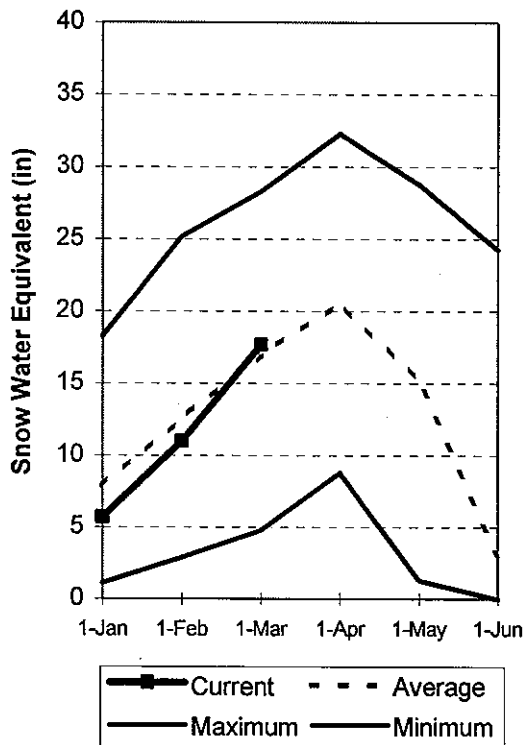
## Bear River Basin

Mar 1, 1999

Snowpacks on the Bear River Basin are now near average at 104% of normal, up 17% relative to last month, very close to last year. Specific sites range from 89% to 142% of normal. The Logan River area ranges from 116% to 142% of normal. February precipitation was much above normal at 163%, which brings the seasonal accumulation (Oct-Feb) to 102% of average. Reservoir storage is excellent at 79% capacity, with small reservoirs, except Porcupine which is under repair, essentially full. In general, water supply conditions are near average and a good water year is expected.

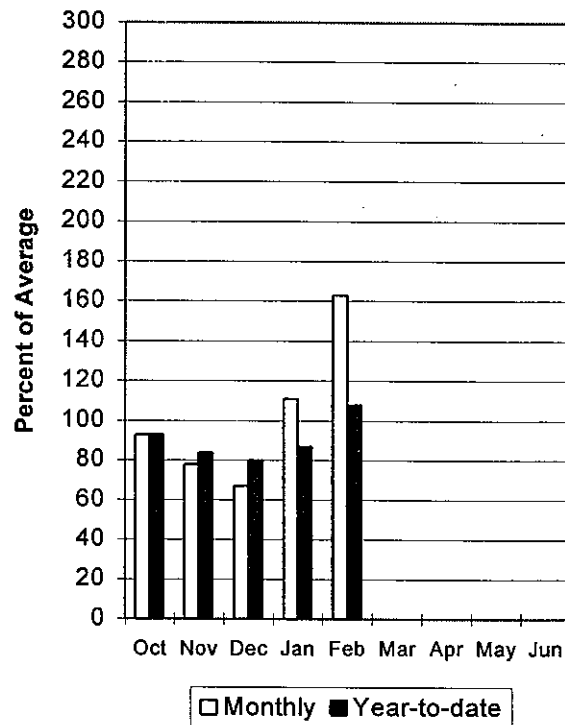
### Mountain Snowpack

3/1/99



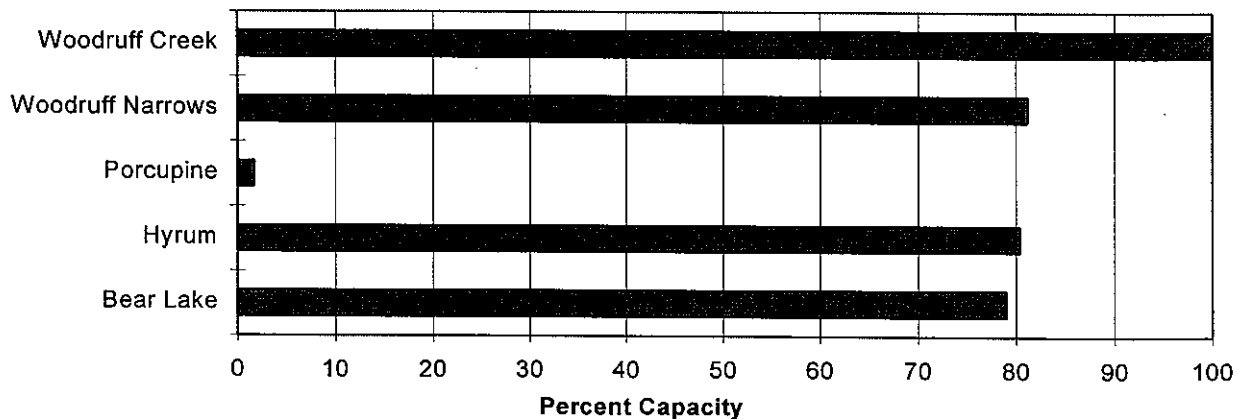
### Precipitation

3/1/99



### Reservoir Storage

3/1/99



BEAR RIVER BASIN  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>						
				Chance Of Exceeding *				30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
BEAR R nr UT-WY State Line	APR-JUL	71	84	95	83	107	127	115
BEAR R nr Woodruff, UT	APR-JUL	68	95	120	81	151	212	149
BIG CK nr Randolph	APR-JUL	0.08	1.74	3.20	84	4.66	6.82	3.80
BEAR R nr Randolph, UT	APR-JUL	25	66	94	80	122	163	118
SMITHS FK nr Border, WY	APR-JUL	71	88	102	100	118	146	102
THOMAS FK nr WY-ID State Line (Disc.	APR-JUL	17.2	24	30	91	38	52	33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	126	188	230	80	272	334	288
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	7.8	9.9	11.6	95	13.6	17.2	12.2
CUB R nr Preston	APR-JUL	36	43	47	100	52	58	47
L BEAR RIVER at Paradise, UT	APR-JUL	23	30	35.0	79	41	53	44.6
LOGAN R nr Logan	APR-JUL	89	106	120	112	136	162	107
BLACKSMITH Fk nr Hyrum	APR-JUL	31	39	45	83	52	64	54

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of February					BEAR RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	1123.0	---	---	BEAR RIVER, UPPER (abv Ha	6	103	100
HYRUM	15.3	12.3	10.3	10.8	BEAR RIVER, LOWER (blw Ha	8	96	107
PORCUPINE	11.3	0.2	---	---	LOGAN RIVER	4	94	116
WOODRUFF NARROWS	57.3	46.5	46.0	---	RAFT RIVER	1	84	122
WOODRUFF CREEK	4.0	4.0	4.0	---	BEAR RIVER BASIN	14	99	104

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

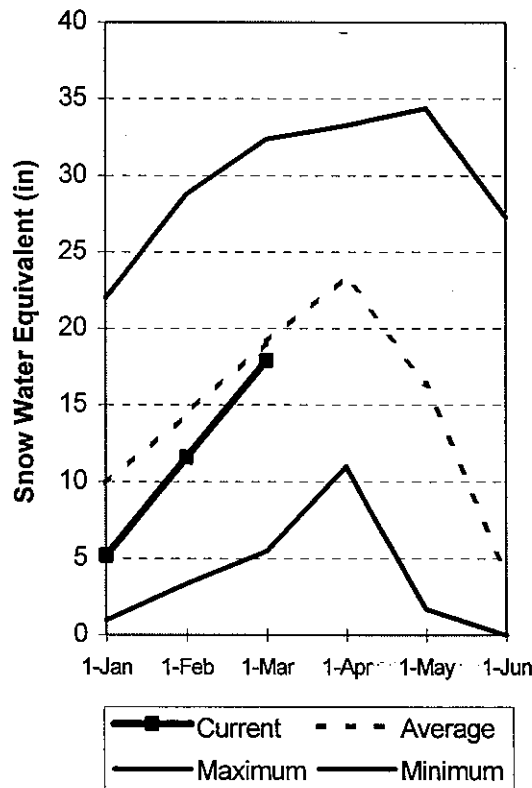
## Weber and Ogden River Basins

### Mar 1, 1999

Snowpack on the Weber and Ogden Watersheds is at 93% of average, up 13% relative to last month but still just 78% of last year. Individual sites range from 77% to near 114% of average. Precipitation during February was above normal at 128% of average, bringing the seasonal accumulation (Oct-Feb) to 98% of average. Reservoir storage on the Weber system is at 77% of capacity. Lost creek is still empty due to repairs. General water supply conditions are good and an average runoff season is expected.

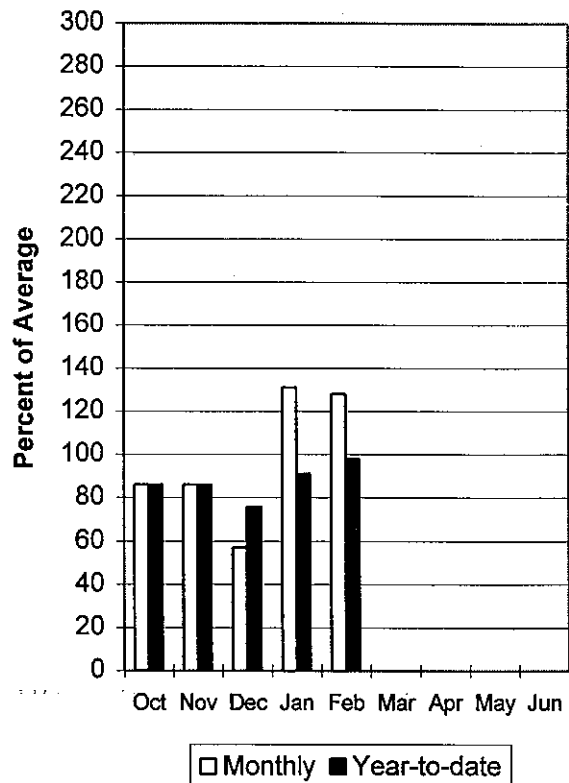
### Mountain Snowpack

3/1/99



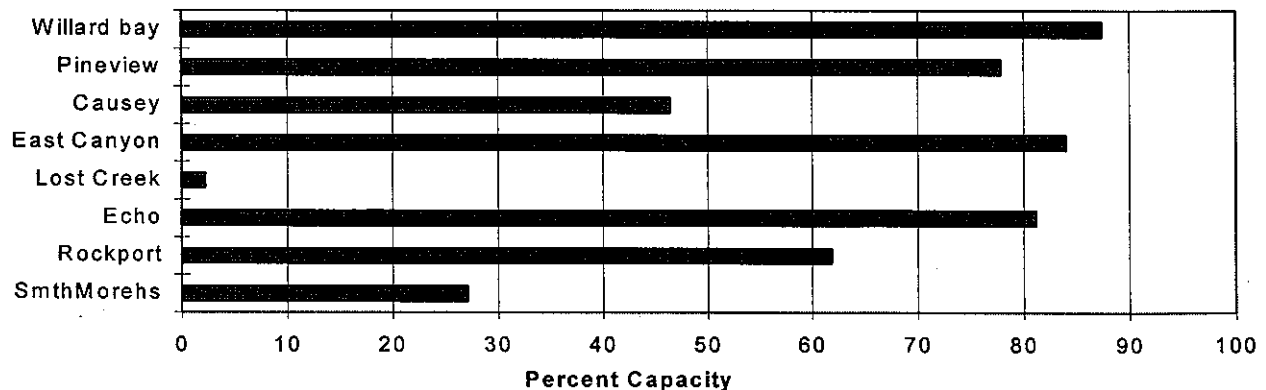
### Precipitation

3/1/99



### Reservoir Storage

3/1/99



WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>						
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SMITH AND MOREHOUSE CK nr Oakley	APR-JUN	16.7	22	26	87	30	35	30
WEBER R nr Oakley	APR-JUL	74	93	105	86	117	136	122
ROCKPORT RESERVOIR inflow	APR-JUL	71	96	113	84	130	155	134
CHALK CK at Coalville, Ut	APR-JUL	17.3	30	39	89	48	61	44
WEBER R nr Coalville, Ut	APR-JUL	70	97	115	85	133	160	136
ECHO RESERVOIR Inflow	APR-JUL	79	121	150	85	179	221	176
LOST CK Res Inflow	APR-JUL	5.0	11.1	15.3	89	19.5	26	17.2
E CANYON CK nr Morgan	APR-JUL	11.3	19.5	25	83	31	39	30
WEBER R at Gateway	APR-JUL	221	262	290	84	318	359	347
S FORK OGDEN R nr Huntsville	APR-JUL	35	46	54	86	62	73	63
PINEVIEW RESERVOIR Inflow	APR-JUL	55	85	105	85	125	155	124
WHEELER CK nr Huntsville	APR-JUL	3.53	4.64	5.40	87	6.16	7.27	6.20

WEBER & OGDEN WATERSHEDS in Utah  
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
CAUSEY	7.1	3.3	7.1	2.3
EAST CANYON	49.5	41.6	39.9	27.7
ECHO	73.9	60.0	60.2	49.5
LOST CREEK	22.5	1.3	2.5	13.4
PINEVIEW	110.1	85.8	49.5	48.7
ROCKPORT	60.9	37.7	37.2	30.2
WILLARD BAY	215.0	137.9	187.6	116.4

WEBER & OGDEN WATERSHEDS in Utah  
Watershed Snowpack Analysis - March 1, 1999

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
OGDEN RIVER	4	69	91
WEBER RIVER	9	84	95
WEBER & OGDEN WATERSHEDS	13	78	93

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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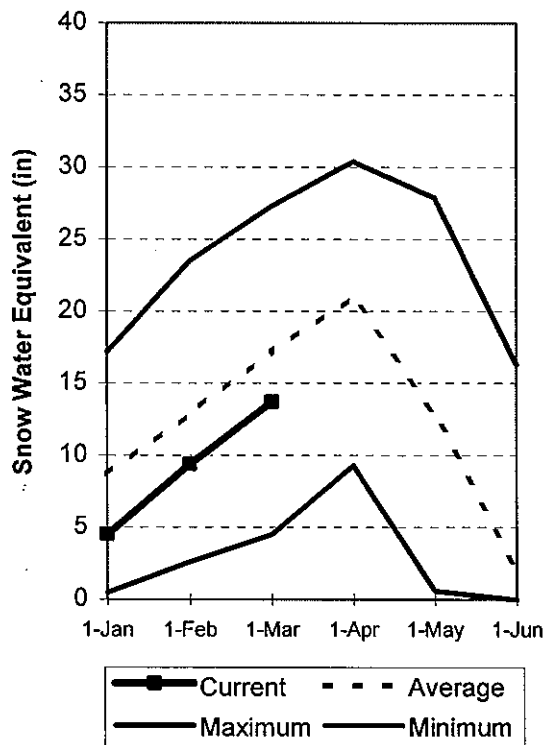
## Utah Lake, Jordan River & Tooele Valley Basins

### Mar 1, 1999

Snowpacks over these watersheds are below average at 80% of normal, up 4% relative to last month but still just 70% of last year. Individual sites range from 62% to 97% of average. Given current conditions, there is only an 8% chance of getting average or higher snowpacks by April first. Precipitation during February was near normal at 107% , bringing the seasonal accumulation (Oct-Feb) to 94% of average. Reservoir storage is at 94% of capacity. Water supply conditions are below normal and below average runoff is expected. Water users on direct streamflow should prepare for a marginal runoff season.

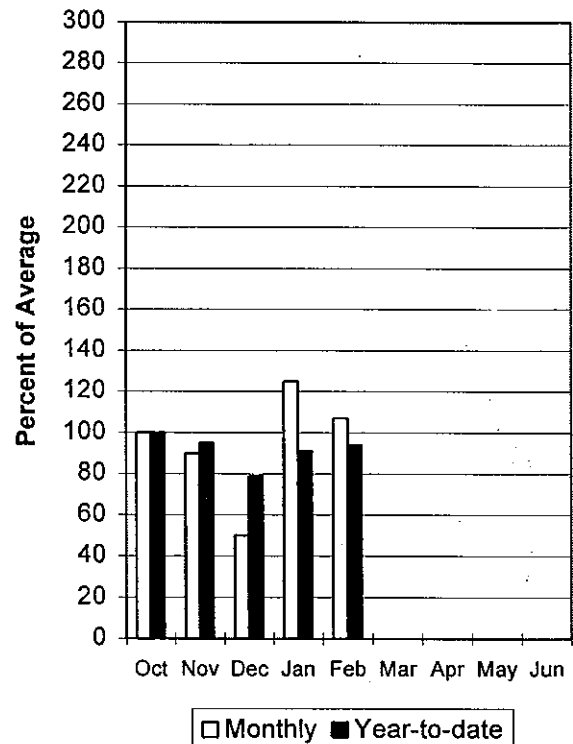
#### Mountain Snowpack

3/1/99



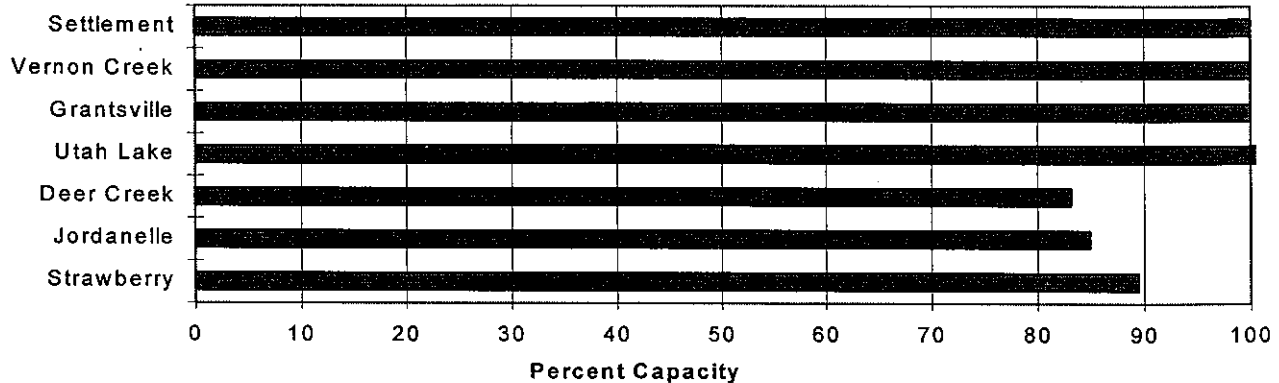
#### Precipitation

3/1/99



#### Reservoir Storage

3/1/99



UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<----- Drier -----		Future Conditions		----- Wetter ----->>>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
PAYSON CK nr Payson	APR-JUL	1.98	2.42	3.30	75	4.18	6.60	4.40
SPANISH FORK nr Castilla	APR-JUL	10.4	34	50	68	66	113	74
HOBBLE CK nr Springville	APR-JUL	6.8	12.0	14.5	77	17.0	22	18.8
PROVO R nr Hailstone	APR-JUL	51		89	82		128	109
PROVO R below Deer Creek Dam	APR-JUL	38		97	76		155	128
AMERICAN FORK nr American Fk.	APR-JUL	17.9	23	26	81	29	34	32
UTAH LAKE inflow	APR-JUL	65		250	77		434	324
L COTTONWOOD CRK nr SLC	APR-JUL	29	36	40	103	44	51	39
BIG COTTONWOOD CRK nr SLC	APR-JUL	26	33	37	97	41	48	38
PARLEY'S CK nr SLC	APR-JUL	2.2	8.2	11.9	75	15.6	22	15.9
MILL CK nr SLC	APR-JUL	2.80	4.72	5.90	91	7.08	8.97	6.50
DELL FK nr SLC	APR-JUL	1.49	4.06	5.50	78	6.94	9.51	7.10
EMIGRATION CK nr SLC	APR-JUL	0.42	2.12	3.50	83			
CITY CK nr SLC	APR-JUL	2.74	5.35	7.00	84	8.65	11.29	8.30
VERNON CK nr Vernon (in Acre Feet)	APR-JUL	483	690	880	66	1122	1608	1340
SETTLEMENT CK nr Tooele (in Acre Fee	APR-JUL	544	1035	1600	70	2474	4702	2300
S WILLOW CK nr Grantsville	APR-JUL	0.19	1.29	2.20	71	3.11	4.44	3.10

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Reservoir Storage (1000 AF) - End of February

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Watershed Snowpack Analysis - March 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	124.5	131.7	95.5	PROVO RIVER & UTAH LAKE	7	80	80
GRANTSVILLE	3.3	3.3		---	PROVO RIVER	4	90	85
SETTLEMENT CREEK	1.0	1.0		---	JORDAN RIVER & GREAT SALT	6	76	82
STRAWBERRY-ENLARGED	1105.9	989.5	989.3	---	TOOELE VALLEY WATERSHEDS	4	48	73
UTAH LAKE	870.9	923.8		---	UTAH LAKE, JORDAN RIVER &	17	70	80
VERNON CREEK	0.6	0.6		---				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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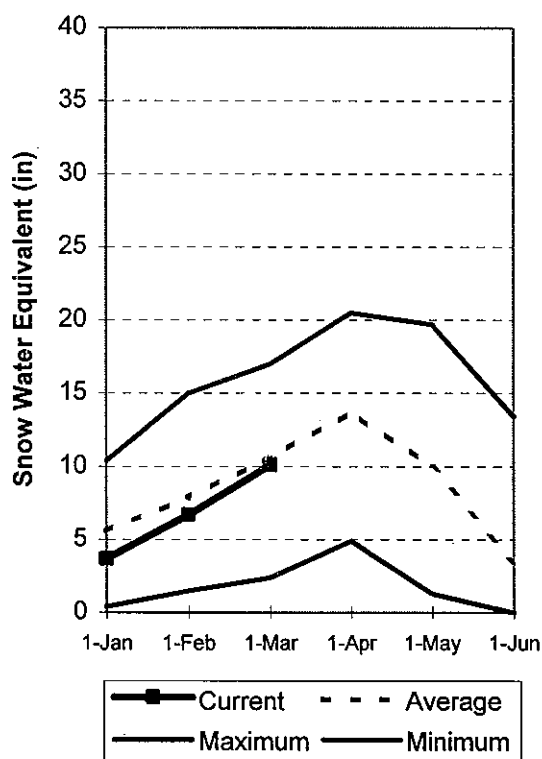
# **Uintah Basin and Dagget SCD's**

**Mar 1, 1999**

Snowpacks across the Uintah Basin and North Slope areas are near average at 98%, up 11% relative to last month. The North Slope is at 101% and the Uintah Basin ranges from 78% to 112% of average. Snowpacks in these areas are 91% of last year. Precipitation during February was 142% of normal, bringing the seasonal accumulation (Oct-Feb) to 105% of average. Reservoir storage is excellent at 90% of capacity. Water supply conditions are good and an average runoff season is expected.

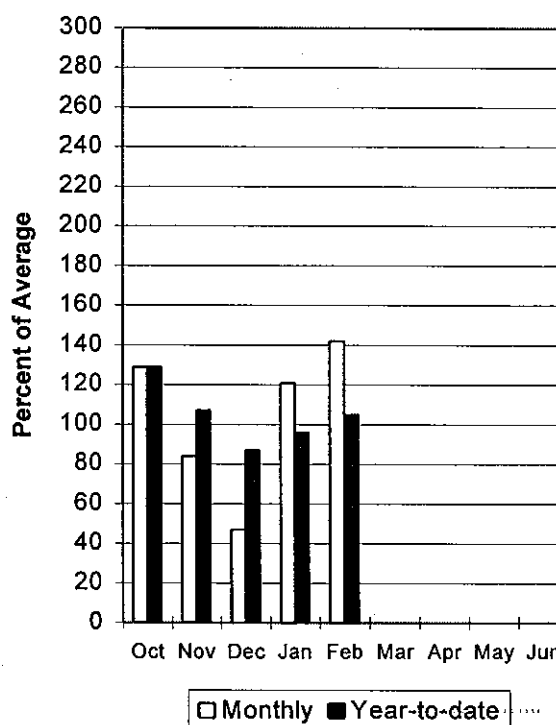
## **Mountain Snowpack**

3/1/99



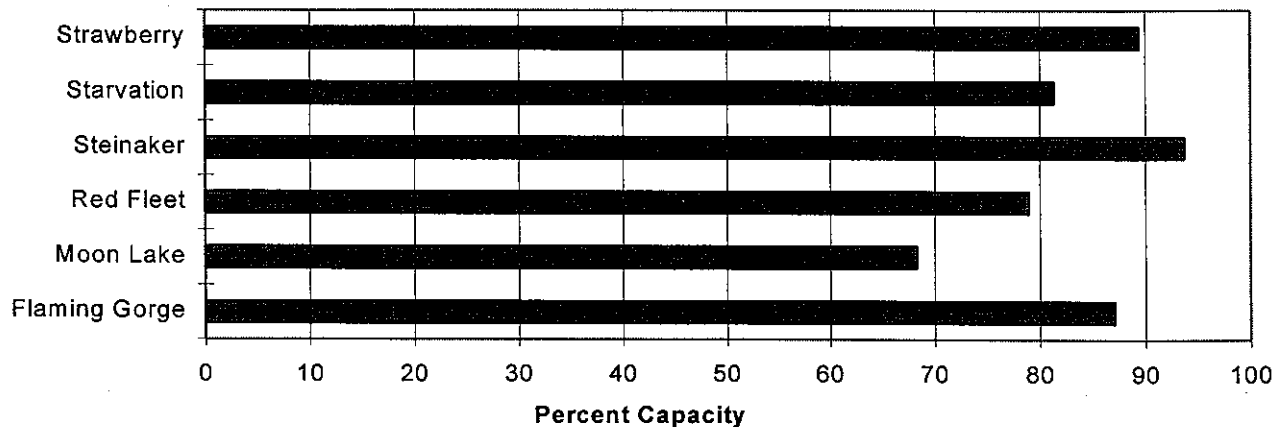
## **Precipitation**

3/1/99



## **Reservoir Storage**

3/1/99



**UINTAH BASIN & DAGGET SCD'S**  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier >>>		Future Conditions		>>> Wetter <<<		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Blacks Fork nr Robertson	APR-JUL	77	94	105	111	116	133	95
EF of Smiths Fork nr Robertson	APR-JUL	26	30	34	113	38	45	30
Flaming Gorge Reservoir Inflow	APR-JUL	945	1218	1350	113	1483	1746	1196
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	10.8	15.1	18.0	91	21	25	19.8
Ashley Creek nr Vernal	APR-JUL	30	45	55	108	65	80	51
WF DUCHESNE RIVER nr Hanna	APR-JUL	10.9	16.0	20	77	25	32	26
DUCHESNE R nr Tabiona	APR-JUL	64	79	90	86	101	116	105
UPPER STILLWATER RESV inflow	APR-JUL	66	77	85	105	93	104	81
ROCK CK nr Mountain Home	APR-JUL	76	88	97	103	106	118	94
DUCHESNE R abv Knight Diversion	APR-JUL	126	161	185	98	209	244	189
STRAWBERRY RES nr Soldier Springs	APR-JUL	24	36	45	76	55	73	59
CURRENT CREEK RESV Inflow	APR-JUL	7.9	12.1	15.0	71	17.9	22	21
STARVATION RESERVOIR inflow	APR-JUL	51	74	90	77	106	129	117
MOON LAKE Inflow	APR-JUL	54	65	72	104	79	90	69
Yellowstone River nr Altonah	APR-JUL	41	56	66	102	76	92	65
DUCHESNE R at Myton	APR-JUL	135	201	245	93	289	355	263
UINTA R nr Neola	APR-JUL	50	72	87	102	102	124	85
Whiterocks River nr Whiterocks	APR-JUL	28	47	60	103	73	92	58
DUCHESNE R nr Randlett	APR-JUL	113	213	310	95	407	550	328

UINTAH BASIN & DAGGET SCD'S Reservoir Storage (1000 AF) - End of February					UINTAH BASIN & DAGGET SCD'S Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** This Year	Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr Average	
FLAMING GORGE	3749.0	3265.3	3247.0	---	UPPER GREEN RIVER in UTAH	6	91	101
MOON LAKE	49.5	33.8	48.9	30.5	ASHLEY CREEK	2	88	82
RED FLEET	25.7	20.3	20.3	---	BLACK'S FORK RIVER	2	104	106
STEINAKER	33.4	31.3	32.4	21.1	SHEEP CREEK	1	67	118
STARVATION	165.3	134.5	131.4	112.1	DUCHESNE RIVER	11	91	95
STRAWBERRY-ENLARGED	1105.9	989.5	989.3	---	LAKE FORK-YELLOWSTONE CRE	4	97	104
					STRAWBERRY RIVER	4	79	78
					UINTAH-WHITEROCKS RIVERS	2	106	112
					UINTAH BASIN & DAGGET SCD	17	91	98

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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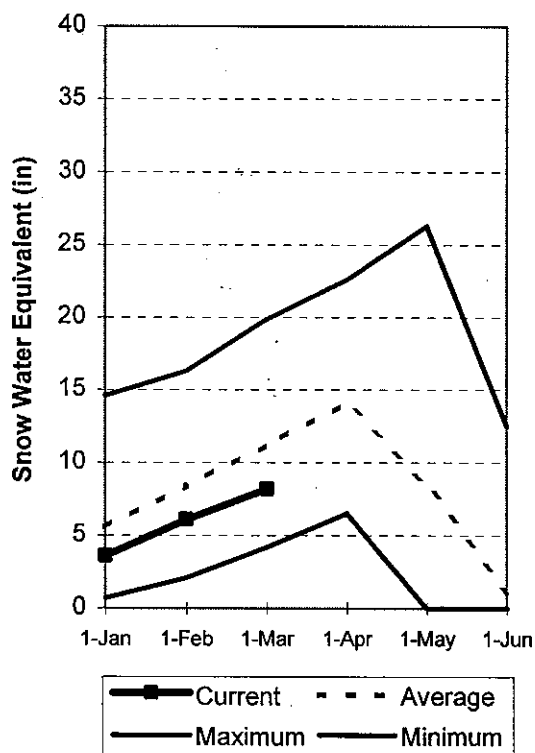


# Carbon, Emery, Wayne, Grand and San Juan Co. Mar 1, 1999

Snowpacks in this region are at 73% of average, no change relative to last month and still only 69% of last year. Individual sites range from 45% to 103% of average. Given current snowpack conditions, there is very little chance that March will have enough snowfall to reach average April first conditions. Precipitation during February was below average at 74%, bringing the seasonal accumulation (Oct-Feb) to 89% of normal. Reservoir storage is in excellent shape at 72% of capacity. General water supply conditions are the worst since 1991. Water users on direct streamflow should prepare for a poor runoff season.

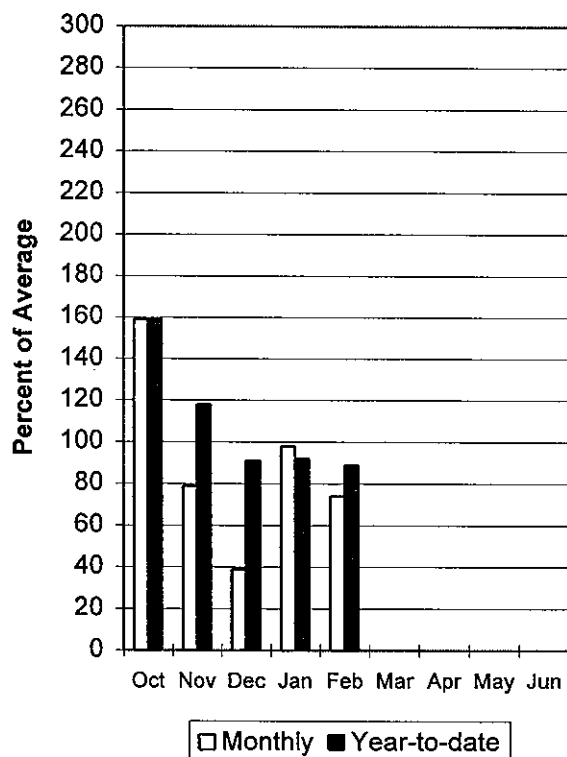
## Mountain Snowpack

3/1/99



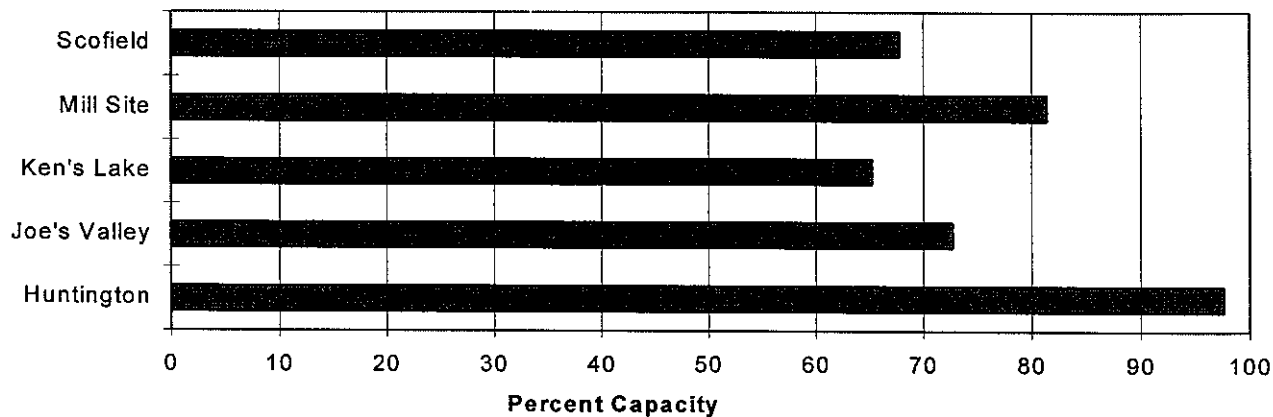
## Precipitation

3/1/99



## Reservoir Storage

3/1/99



CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	3.4	6.2	8.0	68	9.8	12.6	11.7
Scofield Reservoir inflow	APR-JUL	7.9	21	25	57	29	60	44
White River blw Tabbyune Creek	APR-JUL	0.9	6.9	9.5	51	12.5	18.5	18.7
Green River at Green River, UT	APR-JUL	2106	2757	3200	102	3643	4294	3151
Electric Lake inflow	APR-JUL	4.3	6.3	8.0	53	10.0	13.5	15.1
HUNTINGTON CK nr Huntington	APR-JUL	6.2	18.8	24	59	29	46	41
JOE'S VALLEY RESV Inflow	APR-JUL	11.7	20	30	57	40	55	53
Ferron Creek nr Ferron	APR-JUL	16.4	22	27	69	32	40	39
Colorado River nr Cisco	APR-JUL	1538	2468	3100	75	3732	4662	4132
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	0.84	0.97	2.10	35	3.23	4.88	6.00
Indian Creek Tunnel nr Monticello	MAR-JUL	0.18	0.26	0.40	47	0.62	0.95	0.86
Indian Creek abv Cottonwood Creek	MAR-JUL	0.27	0.48	0.70	28	1.50	2.67	2.55
Seven Mile Creek nr Fish Lake	APR-JUL	1.95	3.17	5.00	77	6.83	9.53	6.50
Muddy Creek nr Emery	APR-JUL	4.5	8.6	13.0	66	17.4	24	19.6
North Ck ab R.S. nr Monticello	MAR-JUL	0.11	0.15	0.30	22	0.83	2.07	1.35
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	0.10	0.14	0.30	23	0.53	0.99	1.31
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	0.55	1.03	1.50	25	3.18	5.66	6.07
San Juan River nr Bluff	APR-JUL	196	557	740	64	923	1279	1152

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of February

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - March 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	4.1	3.9	3.0	PRICE RIVER	3	70	74
JOE'S VALLEY	61.6	44.8	47.4	44.6	SAN RAFAEL RIVER	3	69	72
KEN'S LAKE	2.3	1.5	2.2	---	MUDDY CREEK	1	65	67
MILL SITE	16.7	13.6	---	---	FREMONT RIVER	3	85	87
SCOFIELD	65.8	44.6	46.6	32.2	LASAL MOUNTAINS	1	58	55
					BLUE MOUNTAINS	1	60	65
					WILLOW CREEK	1	53	75
					CARBON, EMERY, WAYNE, GRA	13	69	73

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

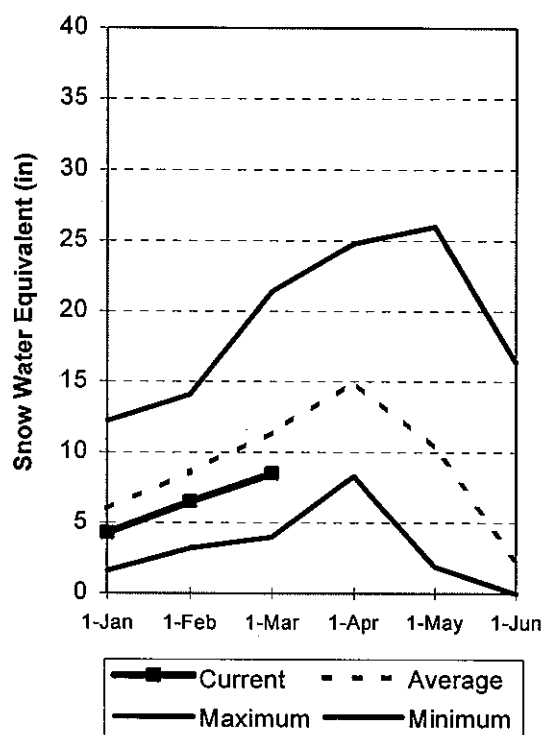
## Sevier and Beaver River Basins

Mar 1, 1999

Snowpacks on the Sevier River Basin are below normal at 77% of average, down slightly from last month, just 60% of last year and the lowest March 1 snowpack since 1990. Low elevation snowpacks (less than 8000 ft) are near 55% of average. Individual sites range from 0% to 100% of average. La Nina years are typically not kind to southern Utah and these numbers have little chance of increasing and could get worse! Precipitation during February was much below average at 64% of normal, bringing the seasonal accumulation (Oct-Feb) to 86% of average. Reservoir storage is in excellent condition at 94% of capacity. General water supply conditions are poor. Those on direct streamflow should prepare for a marginal year.

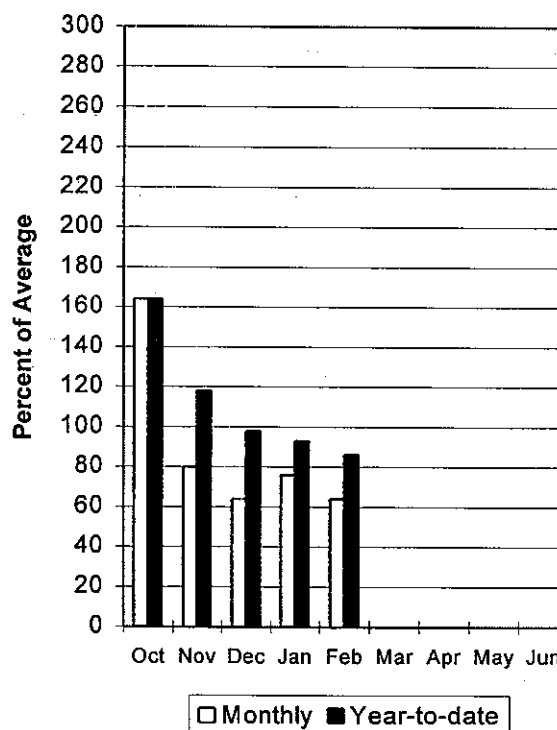
### Mountain Snowpack

3/1/99



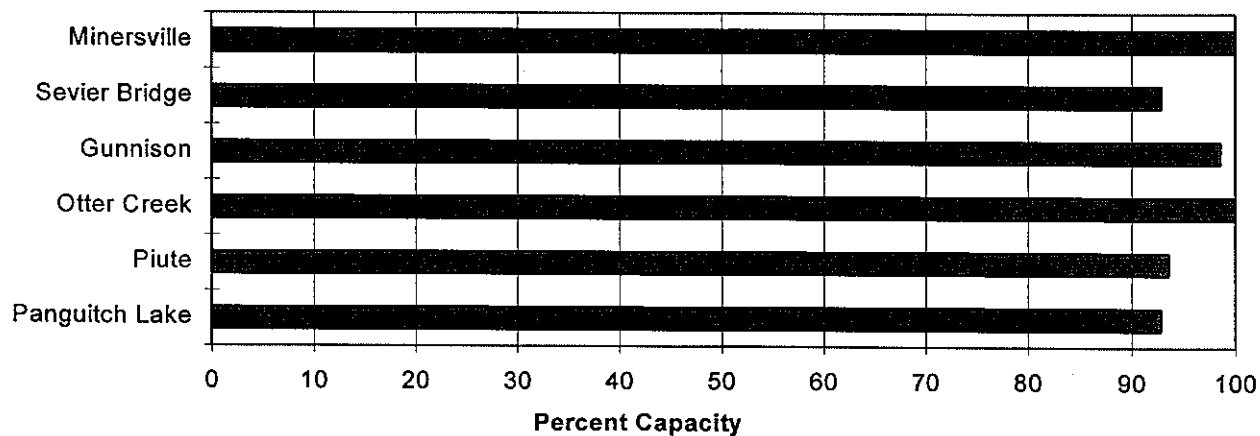
### Precipitation

3/1/99



### Reservoir Storage

3/1/99



SEVIER & BEAVER RIVER BASINS  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SEVIER R at Hatch	APR-JUL	16.2	32	41	76	51	66	54
SEVIER R nr Circleville	APR-JUL	25	46	59	79	73	93	75
SEVIER R nr Kingston	APR-JUL	25	49	63	76	77	101	83
ANTIMONY CK nr Antimony	APR-JUL	2.22	4.18	5.20	70	6.22	8.21	7.40
E F SEVIER R nr Kingston	APR-JUL	5.1	12.7	22	73	31	46	30
SEVIER R blw Piute Dam	APR-JUL	16.0		85	74		154	115
CLEAR CK nr Sevier	APR-JUL	4.2	11.2	15.5	74	19.8	27	21
SALINA CK at Salina	APR-JUL	1.1		11.5	65		36	17.6
PLEASANT CK nr Pleasant	APR-JUL	2.89	4.62	5.50	65	6.38	8.07	8.50
EPHRAIM CK nr Ephraim	APR-JUL	1.6	5.3	7.4	59	9.5	13.2	12.6
SEVIER R nr Gunnison	APR-JUL	65		167	70		390	239
CHICKEN CK nr Levan	APR-JUL	1.28	2.04	2.80	60	3.84	6.11	4.70
OAK CK nr Oak City (Acre Feet)	APR-JUL	635	856	1050	59	1288	1736	1777
BEAVER R nr Beaver	APR-JUL	13.6	16.6	19.0	73	22	27	26
MINERSVILLE RESERVOIR Inflow	APR-JUL	6.6	9.2	11.5	69	14.4	20	16.7

SEVIER & BEAVER RIVER BASINS Reservoir Storage (1000 AF) - End of February					SEVIER & BEAVER RIVER BASINS Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** This Year	Usable Storage Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of	
							Last Yr	Average
GUNNISON	20.3	20.0	19.3	14.0	UPPER SEVIER RIVER (south	8	60	79
MINERSVILLE (RkyFd)	23.3	23.3	22.2	12.9	EAST FORK SEVIER RIVER	3	68	87
OTTER CREEK	52.5	52.5	50.7	31.2	SOUTH FORK SEVIER RIVER	5	57	75
PIUTE	71.8	67.2	71.3	41.5	LOWER SEVIER RIVER (inclu	6	60	75
SEVIER BRIDGE	236.0	219.2	220.3	119.6	BEAVER RIVER	2	57	78
PANGUITCH LAKE	22.3	20.7	15.4	---	SEVIER & BEAVER RIVER BAS	16	60	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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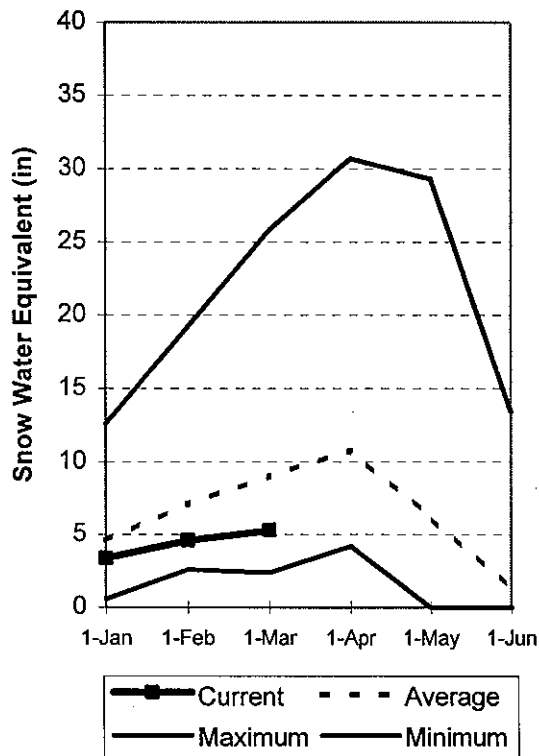
## E. Garfield, Kane, Washington, & Iron co.

### Mar 1, 1999

Snowpacks in this region are much below normal at 59% of average, down 6% relative to last month and about 44% of last year. Individual sites range from 0% to 103% of average. La Nina years are typically not kind to southern Utah and these figures could get worse! This is the lowest snowpack year in this region since 1981. Precipitation during February was much below normal at 51% of average, bringing the seasonal accumulation (Oct-Feb) to 79% of normal. Reservoir storage is in excellent shape at 90% of capacity. General water supply conditions are much below average. Water users on direct streamflow should prepare for a poor runoff season.

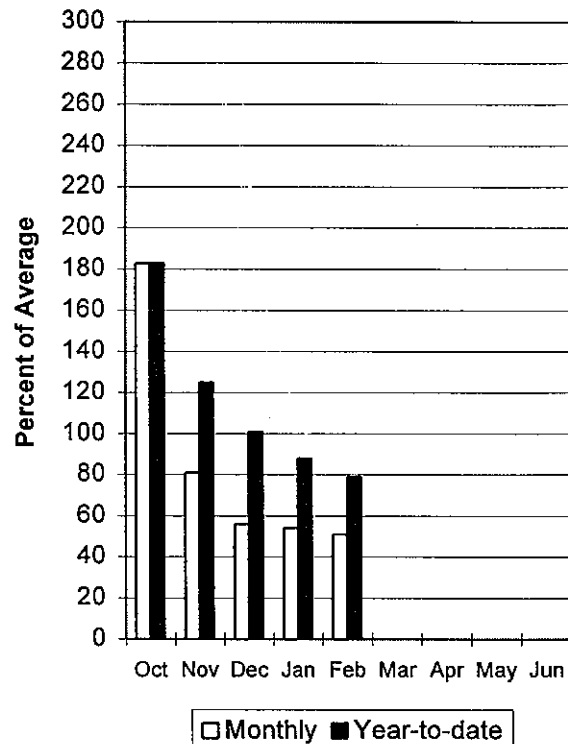
### Mountain Snowpack

3/1/99



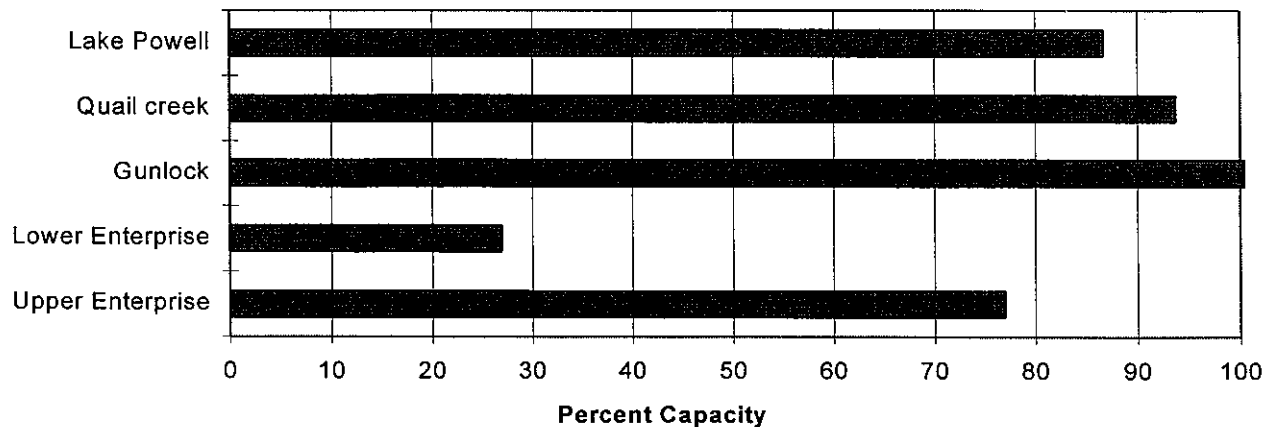
### Precipitation

3/1/99



### Reservoir Storage

3/1/99



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Lake Powell inflow	APR-JUL	3597	5326	6500	84	7674	9403	7735				
Virgin River nr Virgin	APR-JUL	15.2	16.9	26	39	37	60	66				
Virgin River nr Hurricane	APR-JUL	12.2	19.5	27	38	39	70	72				
Santa Clara River nr Pine Valley	APR-JUL	0.69	1.19	2.00	38	3.02	5.99	5.30				
Coal Creek nr Cedar City	APR-JUL	4.1	7.5	10.3	55	13.5	21	18.8				

E. GARFIELD, KANE, WASHINGTON, & IRON Co. Reservoir Storage (1000 AF) - End of February					E. GARFIELD, KANE, WASHINGTON, & IRON Co. Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK	10.4	10.8	10.8	---	VIRGIN RIVER	5	44	58
LAKE POWELL	24322.0	21088.0	20617.0	---	PARIAHAN	2	69	86
QUAIL CREEK	40.0	37.5	40.0	---	ENTERPRISE TO NEW HARMONY	2	0	0
UPPER ENTERPRISE	10.0	7.7	4.8	0.8	COAL CREEK	2	54	65
LOWER ENTERPRISE	2.6	0.7	1.5	0.6	ESCALANTE RIVER	2	83	95
					E. GARFIELD, KANE, WASHIN	9	44	59

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

SNOW COURSE DATA  
FOR THE STATE OF UTAH  
As of March 1999

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
AGUA CANYON SNOTEL	8900	3/01	-	5.2	8.3	6.9	DRY FORK SNOTEL	7160	3/01	-	11.1	20.3	15.3
ALTA CENTRAL	8800	3/03	76	25.3	36.1	32.0	EAST WILLOW CREEK SN	8250	3/01	-	4.5	8.5	6.0
BEAVER DAMS SNOTEL	8000	3/01	-	5.8	9.2	9.5	FARMINGTON CN SNOTEL	8000	3/01	-	24.0	38.1	23.6
BEAVER DIVIDE SNOTL	8280	3/01	-	9.7	10.5	10.0	FARMINGTON CANYON L.	6950	2/26	58	17.6	31.3	19.6
BEN LOMOND PK SNOTL	8000	3/01	-	27.8	47.7	33.0	FARNSWORTH LK SNOTEL	9600	3/01	-	13.1	16.8	15.5
BEN LOMOND TR SNOTL	6000	3/01	-	15.5	29.3	18.0	FISH LAKE	8700	2/24	16	4.5	9.5	7.1
BEVAN'S CABIN	6450	2/26	20	6.0	15.3	9.4	FIVE POINTS LAKE SNO	10920	3/01	-	14.4	13.4	13.6
BIG FLAT SNOTEL	10290	3/01	-	10.7	17.5	14.1	FRANCES FLATS	6700	3/01	50	15.7	25.5	16.1
BIRCH CROSSING	8100	2/25	16	4.8	5.8	6.3	G.B.R.C. HEADQUARTER	8700	2/24	32	9.3	14.2	13.8
BLACK FLAT-U.M. CK S	9400	3/01	-	5.7	6.3	7.9	G.B.R.C. MEADOWS	10000	2/24	49	14.8	18.0	19.2
BLACK'S FORK GS-EF	9340	2/25	26	7.5	9.8	7.6	GARDEN CITY SUMMIT	7600	2/26	50	13.7	12.6	14.7
BLACK'S FORK JUNCTN	8930	2/25	33	8.6	9.3	7.5	GEORGE CREEK	8840	2/24	50	15.2	20.8	17.4
BOX CREEK SNOTEL	9800	3/01	-	9.2	13.9	9.8	GOOSEBERRY R.S.	8400	2/24	30	8.4	10.6	9.9
BRIAN HEAD	10000	2/24	48	13.7	20.5	16.5	GOOSEBERRY R.S. SNOT	7900	3/01	-	5.5	8.2	7.8
BRIGHTON SNOTEL	8750	3/01	-	17.1	20.5	18.0	HARDSCRABBLE SNOTEL	7250	3/01	-	13.2	19.9	17.1
BRIGHTON CABIN	8700	3/02	69	21.4	25.4	23.2	HARRIS FLAT SNOTEL	7700	3/01	-	1.8	9.2	5.7
BROWN DUCK SNOTEL	10600	3/01	-	15.8	15.2	15.1	HAYDEN FORK SNOTEL	9100	3/01	-	13.5	11.4	13.7
BRUCE CANYON	8000	2/24	6	2.2	5.8	4.3	HENRY'S FORK	10000	2/25	43	10.9	13.3	11.2
BUCK FLAT SNOTEL	9800	3/01	-	12.0	17.2	13.7	HEWINTA SNOTEL	9500	3/01	-	9.9	9.3	8.5
BUCK PASTURE	9700	2/25	63	18.6	17.1	12.9	HICKERSON PARK SNOTE	9100	3/01	-	5.9	8.8	5.0
BUCKBOARD FLAT	9000	2/23	26	6.2	8.4	10.6	HIDDEN SPRINGS	5500	3/01	13	4.2	10.2	6.4
BUG LAKE SNOTEL	7950	3/01	-	19.2	18.2	17.0	HOBBLE CREEK SUMMIT	7420	2/25	38	10.7	16.2	12.7
BURT'S-MILLER RANCH	7900	2/25	22	6.3	4.6	4.6	HOLE-IN-ROCK SNOTEL	9150	3/01	-	6.0	6.6	4.5
CAMP JACKSON SNOTEL	8600	3/01	-	6.8	11.3	10.4	HORSE RIDGE SNOTEL	8260	3/01	-	20.2	21.1	19.9
CASTLE VALLEY SNOTL	9580	3/01	-	10.1	12.1	10.1	HUNTINGTON-HORSESHOE	9800	2/24	44	13.5	22.2	19.9
CHALK CK #1 SNOTEL	9100	3/01	-	18.3	19.1	18.6	INDIAN CANYON SNOTEL	9100	3/01	-	7.2	10.2	8.9
CHALK CK #2 SNOTEL	8200	3/01	-	13.7	13.8	12.3	JOHNSON VALLEY	8850	2/24	15	3.5	8.2	6.1
CHALK CREEK #3	7500	2/25	26	7.5	6.6	6.6	KILFOIL CREEK	7300	2/26	46	12.2	13.1	12.1
CHEPETA SNOTEL	10300	3/01	-	12.2	11.7	10.8	KILLION CANYON	6300	3/02	19	6.3	11.1	-
CITY CREEK	7500	3/01	60	19.8	29.4	23.5	KIMBERLY MINE SNOTEL	9300	3/01	-	11.3	14.9	11.6
CLEAR CK RIDG #1 SNT	9200	3/01	-	13.0	17.6	15.8	KING'S CABIN SNOTEL	8730	3/01	-	7.0	8.8	9.3
CLEAR CK RIDG #2 SNT	8000	3/01	-	8.7	13.9	11.3	KLONDIKE NARROWS	7400	2/26	67	20.4	16.9	17.0
CORRAL	8200	3/01	-	-	-	-	KOLOB SNOTEL	9250	3/01	-	11.6	22.1	16.7
CURRENT CREEK SNOTEL	8000	3/01	-	6.3	7.5	9.2	LAKEFORK #1 SNOTEL	10100	3/01	-	11.3	15.4	9.5
DANIELS-STRAWBERRY S	8000	3/01	-	12.5	14.9	15.5	LAKEFORK BASIN SNOTE	10900	3/01	-	16.9	16.2	18.0
DESERET PEAK	9250	-	-	-	-	14.5	LAKEFORK MOUNTAIN #3	8400	2/25	20	5.0	6.4	5.8
DESERET PEAK AM	9250	3/01	-	-	-	13.3	LAMBS CANYON	7400	2/26	52	15.0	17.1	14.3
DESERET PEAK SNOTEL	9250	3/01	-	11.2	22.7	16.4	LASAL MOUNTAIN LOWER	8800	2/23	15	3.4	8.4	7.6
DILL'S CAMP SNOTEL	9200	3/01	-	8.0	12.4	11.9	LASAL MOUNTAIN SNOTE	9850	3/01	-	6.0	10.3	10.9
DONKEY RESERVOIR SNO	9800	3/01	-	6.9	7.2	6.7	LILLY LAKE SNOTEL	9050	3/01	-	11.6	11.6	10.6
DRY BREAD POND SNOTL	8350	3/01	-	15.7	16.6	16.0	LITTLE BEAR LOWER	6000	2/26	38	11.9	17.5	9.4

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
LITTLE BEAR SNOTEL	6550	3/01	-	11.7	18.4	13.0	TROUT CREEK SNOTEL	9400	3/01	-	7.1	7.3	8.0
LITTLE GRASSY SNOTEL	6100	3/01	-	0.0	8.7	2.2	UPPER JOES VALLEY	8900	2/24	24	5.9	9.9	9.3
LONG FLAT SNOTEL	8000	3/01	-	0.0	8.6	7.0	VERNON CREEK SNOTEL	7500	3/01	-	6.1	16.9	9.2
LONG VALLEY JCT. SNT	7500	3/01	-	0.0	6.5	4.3	VIPONT	7670	2/24	50	16.4	-	12.3
LOOKOUT PEAK SNOTEL	8200	3/01	-	19.1	27.2	25.4	WEBSTER FLAT SNOTEL	9200	3/01	-	5.8	14.0	12.4
LOST CREEK RESERVOIR	6130	2/26	15	5.3	6.5	5.4	WHITE RIVER #1 SNOTEL	8550	3/01	-	7.6	10.5	11.6
MAMMOTH-COTTONWOOD SNT	8800	3/01	-	11.8	18.2	16.6	WHITE RIVER #3	7400	2/25	15	3.7	7.5	7.8
MERCHANT VALLEY SNOT	8750	3/01	-	7.5	14.3	9.3	WIDTSON #3 SNOTEL	9500	3/01	-	7.6	10.2	8.5
MIDDLE CANYON	7000	2/26	34	10.5	18.4	11.5	WRIGLEY CREEK	9000	2/24	29	7.3	9.5	9.6
MIDWAY VALLEY SNOTEL	9800	3/01	-	14.0	23.0	17.9	YANKEE RESERVOIR	8700	2/24	26	7.1	10.3	7.8
MILL CREEK	6950	2/26	55	15.6	21.2	17.6							
MILL-D NORTH SNOTEL	8960	3/01	-	18.6	24.1	19.8							
MILL-D SOUTH FORK	7400	3/03	48	14.8	19.3	16.7							
MINING FORK SNOTEL	8000	3/01	-	10.7	23.0	14.4							
MONTE CRISTO SNOTEL	8960	3/01	-	23.3	25.9	23.5							
MOSBY MTN. SNOTEL	9500	3/01	-	8.8	8.2	7.9							
MT. BALDY R.S.	9500	2/24	51	14.8	21.6	19.6							
MUD CREEK #2	8600	2/24	35	8.1	12.0	11.8							
OAK CREEK	7760	2/24	30	7.6	11.6	10.3							
PANGUITCH LAKE R.S.	8200	2/24	2	0.9	4.4	4.4							
PARLEY'S CANYON SUM.	7500	2/25	53	15.1	18.5	15.7							
PARLEY'S CANYON SNOT	7500	3/01	-	12.7	13.9	16.0							
PAYSON R.S. SNOTEL	8050	3/01	-	10.0	16.1	16.2							
PICKLE KEG SNOTEL	9600	3/01	-	9.8	17.5	13.5							
PINE CREEK SNOTEL	8800	3/01	-	12.9	28.4	15.5							
RED PINE RIDGE SNOTE	9200	3/01	-	9.1	12.2	14.3							
REDDEN MINE LOWER	8500	2/25	49	14.4	16.3	15.0							
REES'S FLAT	7300	2/24	34	9.6	12.4	10.9							
ROCK CREEK SNOTEL	7900	3/01	-	7.3	9.1	7.5							
ROCKY BN-SETTLEMENT SN	8900	3/01	-	15.5	27.1	20.0							
SEELEY CREEK SNOTEL	10000	3/01	-	7.6	12.3	11.9							
SILVER LAKE (BRIGHT.)	8730	3/02	63	20.3	26.0	20.3							
SMITH MOREHOUSE SNTL	7600	3/01	-	11.7	13.0	11.9							
SNOWEIRD SNOTEL	9700	3/01	-	22.8	27.7	29.0							
SPIRIT LAKE	10300	2/25	40	10.7	12.3	10.1							
SQUAW SPRINGS	9300	2/23	14	3.2	9.4	6.4							
STEEL CREEK PARK SNO	10100	3/01	-	12.4	12.2	12.6							
STILLWATER CAMP	8550	2/25	37	9.7	9.0	8.6							
STRAWBERRY DIVIDE SN	8400	3/01	-	13.1	16.6	16.4							
SUSC RANCH	8200	2/25	6	1.8	8.5	8.0							
TAIL POLES	8800	2/25	37	10.1	14.0	11.7							
THAYNES CANYON SNOTL	9200	3/01	-	18.2	21.0	17.3							
THISTLE FLAT	8500		-		-	-							
TIMBERLINE	9100		-		-	-							
TIMPANOGOS DIVIDE SN	8140	3/01	-	17.0	20.0	20.4							
TONY GROVE LK SNOTEL	8400	3/01	-	37.5	37.6	29.3							
TONY GROVE R.S.	6250	2/26	53	15.3	14.3	10.8							
TRIAL LAKE	9960	2/25	68	19.6	20.2	20.3							
TRIAL LAKE SNOTEL	9960	3/01	-	17.9	17.9	21.2							



<b>UTAH SURFACE</b>	<b>WATER</b>	<b>SUPPLY</b>	<b>INDEX</b>	
<b>Snow Surveys</b>				
<b>Basin or Region</b>	<b>SWSI/%</b>	<b>Percentile</b>	<b>Years with Similar SWSI</b>	<b>Agricultural Water Shortage May Occur If SWSI Less Than</b>
<b>Bear River</b>	<b>-0.2</b>	<b>47%</b>	<b>98,70,68,97</b>	<b>-3.8</b>
<b>Ogden River</b>	<b>-0.8</b>	<b>40%</b>	<b>66,76,67,89</b>	
<b>Weber River</b>	<b>-1.0</b>	<b>38%</b>	<b>81,76,70,68</b>	
<b>Tooele Valley</b>	<b>NA</b>			
<b>Provo</b>	<b>1.2</b>	<b>65%</b>	<b>72,76,87,98</b>	
<b>North Slope</b>	<b>NA</b>			
<b>West Uintah Basin</b>	<b>3.1</b>	<b>88%</b>	<b>98,97,86</b>	
<b>East Uintah Basin</b>	<b>1.0</b>	<b>62%</b>	<b>93,80,98,87</b>	
<b>Price River</b>	<b>-1.2</b>	<b>36%</b>	<b>94,72,88,65</b>	
<b>San Rafael</b>	<b>-1.1</b>	<b>37%</b>	<b>91,76,88,87</b>	
<b>Moab</b>	<b>-2.8</b>	<b>17%</b>	<b>90,89,81,91</b>	
<b>Upper Sevier River</b>	<b>0.9</b>	<b>60%</b>	<b>97,81,87,68</b>	
<b>Lower Sevier River</b>	<b>1.1</b>	<b>63%</b>	<b>74,75,98,79</b>	
<b>Beaver River</b>	<b>-.2</b>	<b>47%</b>	<b>67,71,78,74</b>	
<b>Virgin River</b>	<b>-1.0</b>	<b>38%</b>	<b>96,85,87,86</b>	
<b>Snow Surveys</b>			<b>SWSI Scale: -4 to 4</b>	
<b>245 N Jimmy Doolittle Rd</b>			<b>Percentile: 0 - 100%</b>	
<b>Salt Lake City, UT</b>				
<b>(801) 524-5213</b>				



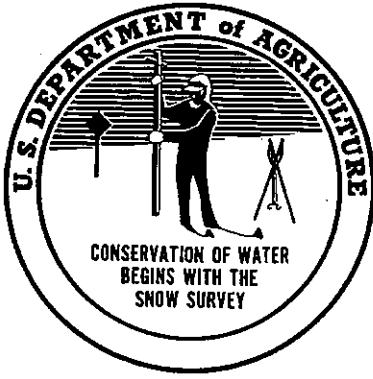
*Issued by*

**Pearlie S. Reed  
Chief  
Natural Resources Conservation Service  
U.S. Department of Agriculture**

*Released by*

**Phillip J. Nelson  
State Conservationist  
Natural Resources Conservation Service  
Salt Lake City, Utah**

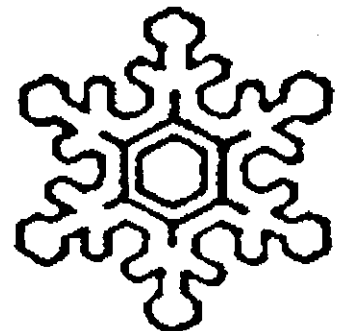
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245 North Jimmy Doolittle Road  
Salt Lake City, UT 84116



**Utah**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
Salt Lake City, UT



# Utah

## Basin Outlook Report

April 1, 1999



# Basin Outlook Reports

## and

### Federal - State - Private

### Cooperative Snow Surveys

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*For more water supply and resource management information, contact:*

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**David M. Webster, District Conservationist, 240 W. HWY 40, 333-4, Roosevelt, UT 84006 - Phone: (435) 722-4261**

**Gary L. Roeder, District Conservationist, 350 North 400 East, Price, UT 84501 - Phone: (435) 637-0041**

**Vane O. Campbell, District Conservationist, 340 N. 600 E., Richfield, UT 84701 - Phone: (435) 896-6441**

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#### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **STATE OF UTAH GENERAL OUTLOOK**

**Apr 1, 1999**

## **SUMMARY**

As predicted last month, the La Nina signature with respect to snowpack has intensified in southern Utah. New record low April 1 snowpacks (since 1961 with comparable records) have been set on the Sevier and Virgin river basins and all of southeastern Utah including the Price river basin is within 0.2 inches of a new record low. The low elevation snowpacks are essentially gone and the higher elevations have little left to generate significant snowmelt streamflow. In some areas, snowmelt streamflow is basically over. Snowpacks on the Bear river basin in northern Utah are very near average (95%) but decrease quickly as one progresses southward. On the Weber snowpacks are only 83%, and on the Provo lower yet at 68% of normal. March is normally a good month for increasing snowpacks, this year however, the highest snowpack increase (on the Bear River) was a minuscule 38% of normal. Southern Utah had negative March snowpack increases ranging from -31% to -72% of average. A very wet spring and early summer could mitigate the affects of these low snowpacks. Precipitation during March was below to much below normal in the north (45%-75%) and almost non-existent in the south (16%-34%). Seasonal precipitation, (Oct-Mar) is near 75% in the south and near average in the north. Reservoir storage is generally in excellent condition at 86% of capacity. Most reservoirs in southern Utah are at 90% of capacity or higher. Most operators are following a conservative strategy in anticipation of a marginal runoff year. Streamflow forecasts call for near to below normal April-July runoff in the north and much below average streamflow in the south.

## **SNOWPACK**

March first snowpacks in Utah, as measured by the NRCS SNOTEL system, are near to below average in northern Utah, down 10% to 15% relative to last month. In the south, snowpacks are below to much below average, 37% to 52% of normal, down 25% relative to last month. Many of the basins of southern Utah have the lowest snowpacks of record. Overall, snowpack conditions in the north have declined significantly over the past month and, in the south, conditions have generally declined since mid February. Snowmelt is already over in some areas of southern Utah.

## **PRECIPITATION**

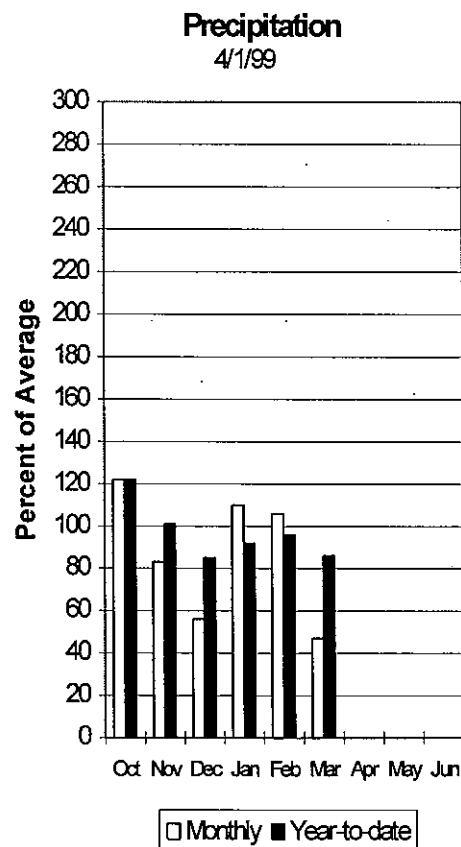
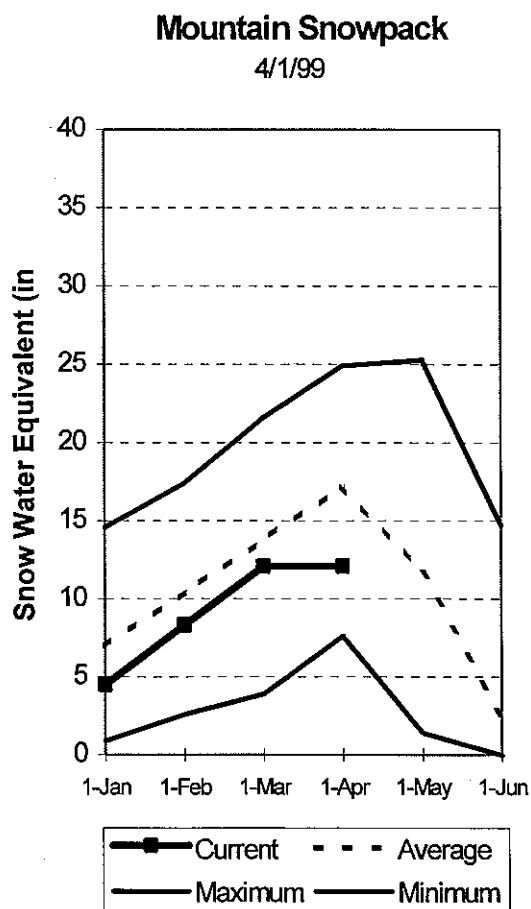
Mountain precipitation in March, as measured by the NRCS SNOTEL system, was below to much below normal in the north (45% - 75%) and much below normal in the south (16% to 34%). This brings the seasonal accumulation (Oct-Mar) to 86% of average statewide.

## RESERVOIRS

Storage in 41 of Utah's key irrigation reservoirs is at 86% of capacity. Many reservoirs are retaining as much water as possible in anticipation of a poor runoff season.

## STREAMFLOW

Snowmelt streamflows are expected to be near to below average in northern Utah and below to much below average in southern Utah. Streamflows will most likely start early, end early, have lower peaks and low volumes this runoff season. Those on direct streamflow should prepare for a very poor season.





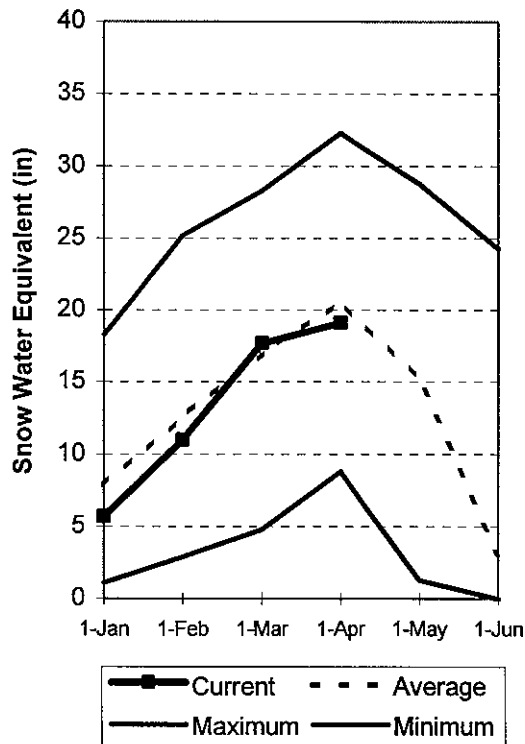
## Bear River Basin

Apr 1, 1999

Snowpacks on the Bear River Basin are now near average at 95% of normal, down 9% relative to last month, very close to last year. Specific sites range from 56% to 122% of normal. March snowpack increase was only 38% of normal, but was the highest in the state. March precipitation was below normal at 74%, which brings the seasonal accumulation (Oct-Mar) to 98% of average. Reservoir storage is excellent at 78% capacity, with small reservoirs, except Porcupine which is under repair, essentially full. In general, water supply conditions are near average and a good water year is expected.

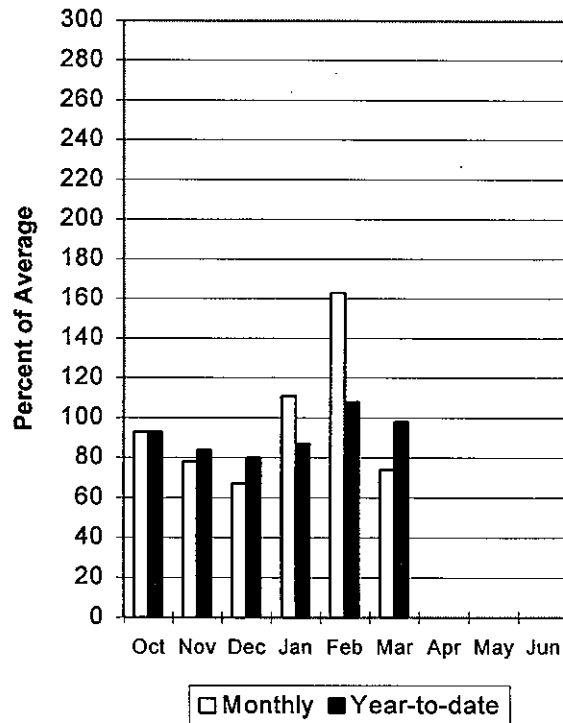
### Mountain Snowpack

4/1/99



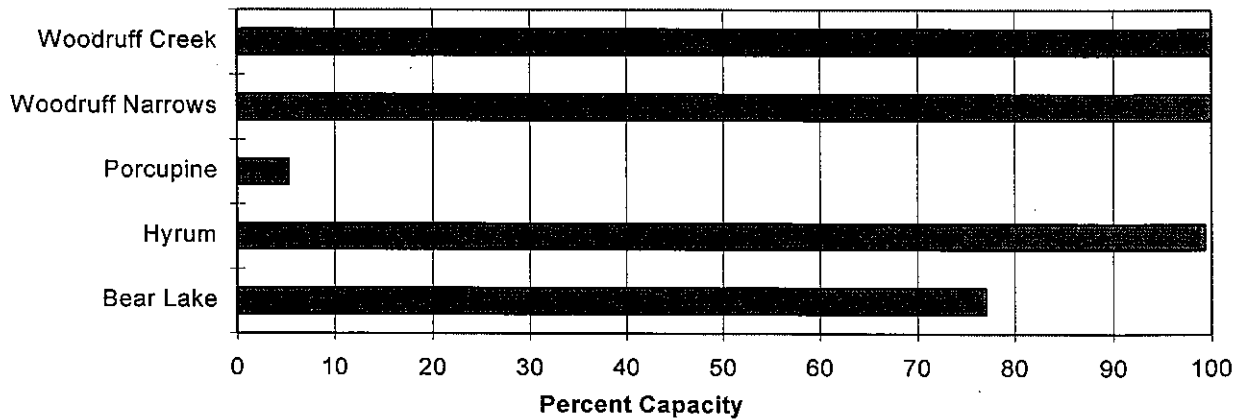
### Precipitation

4/1/99



### Reservoir Storage

4/1/99



BEAR RIVER BASIN  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Bear R nr UT-WY State Line	APR-JUL	75	86	95	83	104	120	115
BEAR R nr Woodruff, UT	APR-JUL	72	98	120	81	147	199	149
BIG CK nr Randolph	APR-JUL	0.08	1.74	3.20	84	4.66	6.82	3.80
BEAR R nr Randolph, UT	APR-JUL	29	68	94	80	120	159	118
SMITHS FK nr Border, WY	APR-JUL	70	85	96	94	109	131	102
THOMAS FK nr WY-ID State Line (Disc.	APR-JUL	17.7	24	29	88	35	48	33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	123	178	215	75	252	307	288
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	6.8	8.6	10.0	82	11.7	14.6	12.2
CUB R nr Preston	APR-JUL	31	36	40	85	44	49	47
L BEAR RIVER at Paradise, UT	APR-JUL	201	247	285	64	328	405	446
LOGAN R nr Logan	APR-JUL	96	107	115	108	124	138	107
BLACKSMITH Fk nr Hyrum	APR-JUL	36	40	43	80	46	52	54

BEAR RIVER BASIN  
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
BEAR LAKE	1421.0	1095.3	1078.6	998.0
HYRUM	15.3	15.2	14.3	12.2
PORCUPINE	11.3	0.6	11.0	5.0
WOODRUFF NARROWS	57.3	57.3	46.0	---
WOODRUFF CREEK	4.0	4.0	4.0	---

BEAR RIVER BASIN  
Watershed Snowpack Analysis - April 1, 1999

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
BEAR RIVER, UPPER (abv Ha	6	97	92
BEAR RIVER, LOWER (blw Ha	8	96	93
LOGAN RIVER	4	96	103
RAFT RIVER	1	84	114
BEAR RIVER BASIN	14	96	93

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

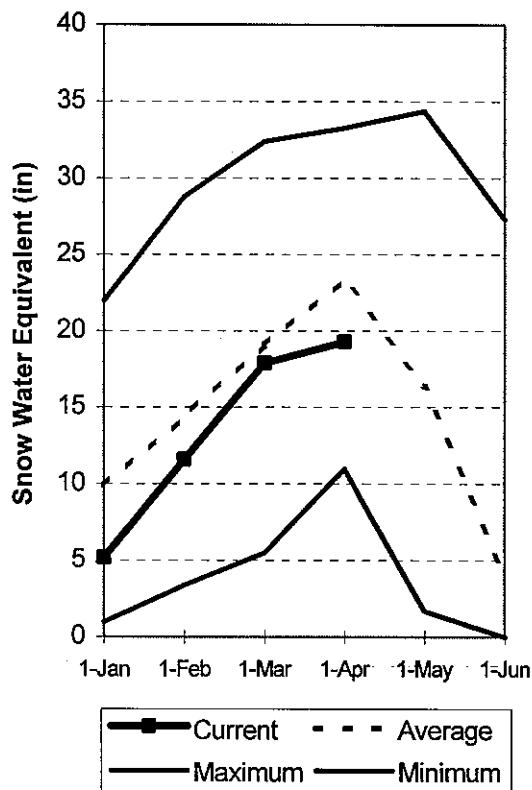
## Weber and Ogden River Basins

### Apr 1, 1999

Snowpack on the Weber and Ogden Watersheds is at 83% of average, down 10% relative to last month but still just 75% of last year. Individual sites range from 11% to near 102% of average. The march snowpack accumulation was just 31% of average. Precipitation during March was much below normal at 56% of average, bringing the seasonal accumulation (Oct-Mar) to 90% of average. Reservoir storage on the Weber system is at 75% of capacity. Lost creek is still empty due to repairs. General water supply conditions are slightly below normal and a marginal runoff season is expected.

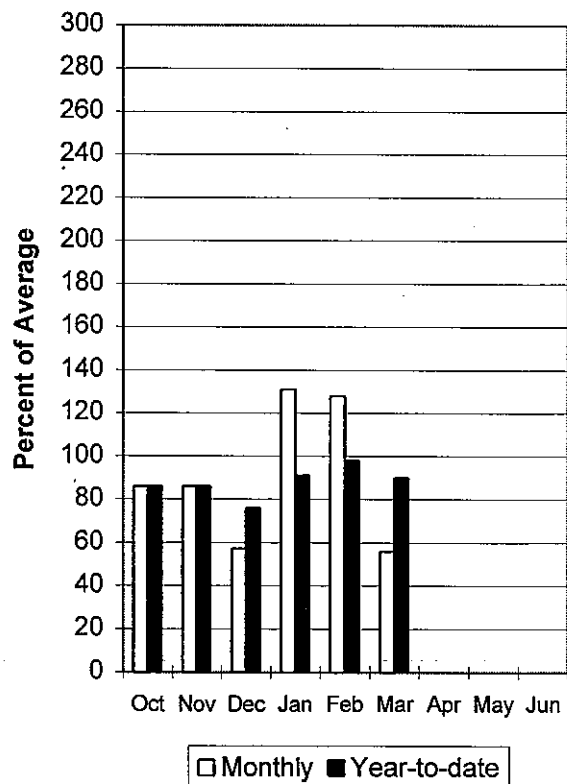
### Mountain Snowpack

4/1/99



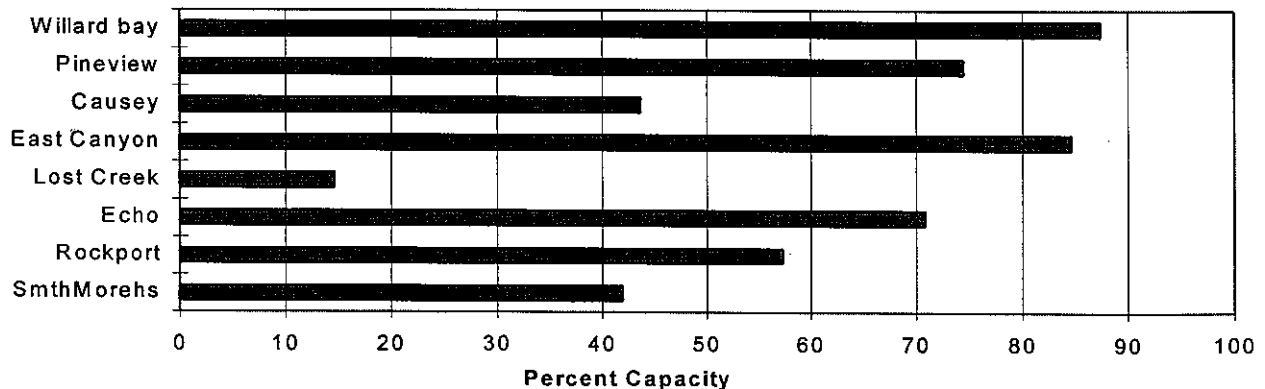
### Precipitation

4/1/99



### Reservoir Storage

4/1/99



WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SMITH AND MOREHOUSE CK nr Oakley	APR-JUN	16.7	21	24	80	27	31	30
WEBER R nr Oakley	APR-JUL	72	87	98	80	109	124	122
ROCKPORT RESERVOIR inflow	APR-JUL	68	87	100	75	113	132	134
CHALK CK at Coalville, Ut	APR-JUL	15.9	27	35	80	43	54	44
WEBER R nr Coalville, Ut	APR-JUL	67	88	103	76	118	139	136
ECHO RESERVOIR Inflow	APR-JUL	65	104	130	74	156	195	176
LOST CK Res Inflow	APR-JUL	6.2	10.9	14.0	81	17.1	22	17.2
E CANYON CK nr Morgan	APR-JUL	13.1	18.4	22	73	26	31	30
WEBER R at Gateway	APR-JUL	191	232	260	75	288	329	347
S FORK OGDEN R nr Huntsville	APR-JUL	39	46	51	81	56	63	63
PINEVIEW RESERVOIR Inflow	APR-JUL	60	81	95	77	109	130	124
WHEELER CK nr Huntsville	APR-JUL	3.47	4.38	5.00	81	5.62	6.53	6.20

WEBER & OGDEN WATERSHEDS in Utah  
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
CAUSEY	7.1	3.1	4.7	2.6
EAST CANYON	49.5	41.9	40.6	36.6
ECHO	73.9	52.4	54.7	49.5
LOST CREEK	22.5	3.3	1.6	13.3
PINEVIEW	110.1	82.0	62.8	55.6
ROCKPORT	60.9	34.9	38.2	30.9
WILLARD BAY	215.0	184.7	185.5	125.3

WEBER & OGDEN WATERSHEDS in Utah  
Watershed Snowpack Analysis - April 1, 1999

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
OGDEN RIVER	4	67	80
WEBER RIVER	9	80	84
WEBER & OGDEN WATERSHEDS	13	75	83

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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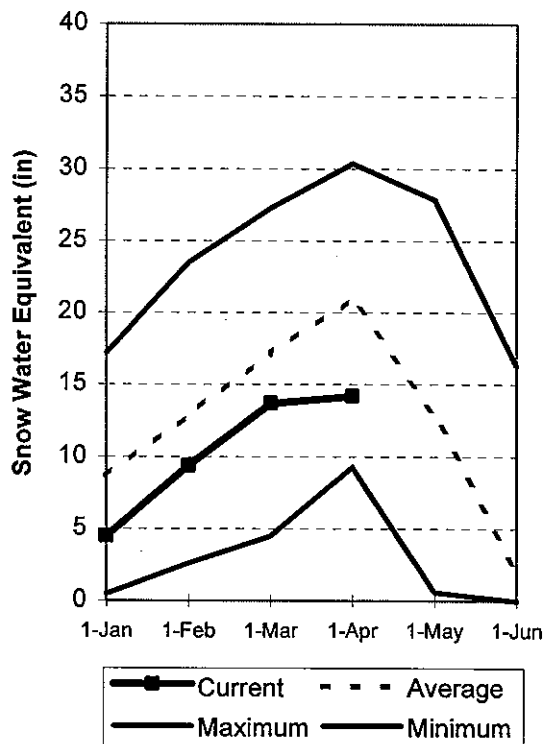
## Utah Lake, Jordan River & Tooele Valley Basins

### Apr 1, 1999

Snowpacks over these watersheds are now much below average at 68% of normal, down 12% relative to last month and just 61% of last year. Individual sites range from 0% to 93% of average. The March snowpack increase was just 13% of normal. Precipitation during March was much below normal at 55%, bringing the seasonal accumulation (Oct-Mar) to 87% of average. Reservoir storage is at 93% of capacity. Water supply conditions are much below normal and below to much below average runoff is expected. Water users on direct streamflow should prepare for a marginal runoff season.

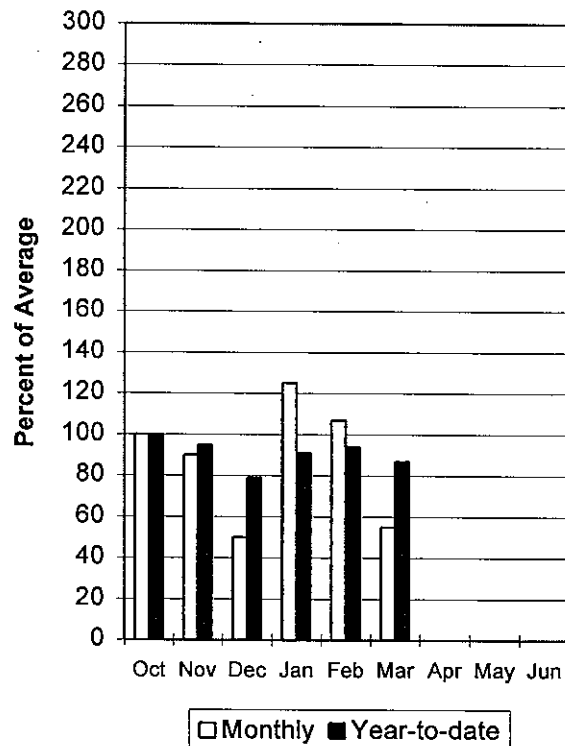
#### Mountain Snowpack

4/1/99



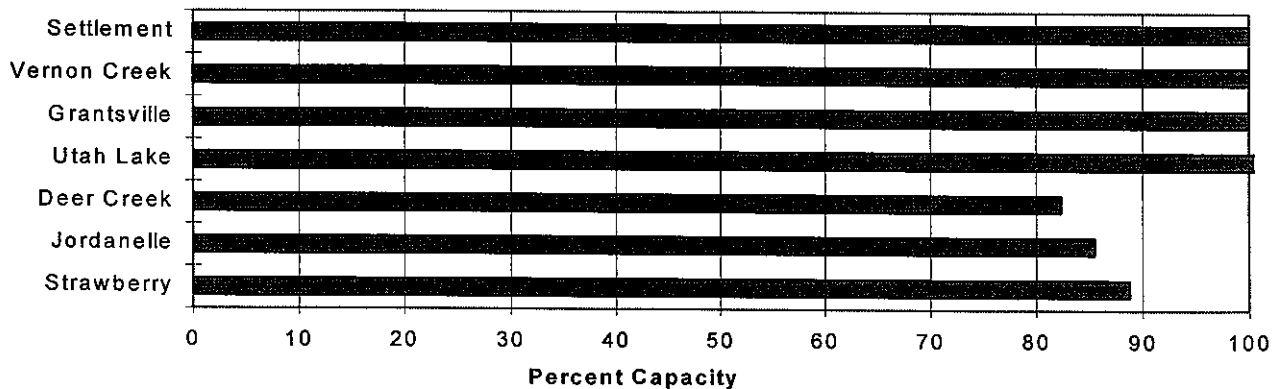
#### Precipitation

4/1/99



#### Reservoir Storage

4/1/99



**UTAH LAKE, JORDAN RIVER & TOOELE VALLEY**  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PAYSON CK nr Payson	APR-JUL	1.80	2.16	2.40	55	2.68	5.41	4.40
SPANISH FORK nr Castilla	APR-JUL	10.4	24	44	60	64	98	74
HOBBLE CK nr Springville	APR-JUL	4.5	8.3	10.0	53	11.7	15.4	18.8
PROVO R nr Hailstone	APR-JUL	43		79	73		116	109
PROVO R below Deer Creek Dam	APR-JUL	35		87	68		140	128
AMERICAN FORK nr American Fk.	APR-JUL	13.1	17.2	20	63	23	27	32
UTAH LAKE inflow	APR-JUL	36		185	57		334	324
L COTTONWOOD CRK nr SLC	APR-JUL	25	30	33	85	36	41	39
BIG COTTONWOOD CRK nr SLC	APR-JUL	22	28	31	82	34	40	38
PARLEY'S CK nr SLC	APR-JUL	2.1	7.2	10.3	65	13.4	18.4	15.9
MILL CK nr SLC	APR-JUL	2.02	3.73	4.80	74	5.87	7.61	6.50
DELL FK nr SLC	APR-JUL	0.78	3.44	4.90	69	6.36	9.02	7.10
EMIGRATION CK nr SLC	APR-JUL	1.01	1.50	2.70	64	3.90	5.88	4.20
CITY CK nr SLC	APR-JUL	2.08	4.42	5.80	70	7.18	9.46	8.30
VERNON CK nr Vernon (in Acre Feet)	APR-JUL	381	519	640	48	790	1075	1340
SETTLEMENT CK nr Tooele (in Acre Fee	APR-JUL	447	785	1150	50	1685	2959	2300
S WILLOW CK nr Grantsville	APR-JUL	0.06	0.99	1.80	58	2.61	3.80	3.10

**UTAH LAKE, JORDAN RIVER & TOOELE VALLEY**  
Reservoir Storage (1000 AF) - End of March

**UTAH LAKE, JORDAN RIVER & TOOELE VALLEY**  
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	123.3	124.8	97.9	PROVO RIVER & UTAH LAKE	7	68	62
GRANTSVILLE	3.3	3.3	3.3	---	PROVO RIVER	4	74	66
SETTLEMENT CREEK	1.0	1.0	0.9	0.6	JORDAN RIVER & GREAT SALT	6	69	79
STRAWBERRY-ENLARGED	1105.9	982.0	993.3	---	TOOELE VALLEY WATERSHEDS	4	41	57
UTAH LAKE	870.9	907.5	931.5	722.9	UTAH LAKE, JORDAN RIVER &	17	61	68
VERNON CREEK	0.6	0.6	0.6	0.5				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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 (2) - The value is natural flow - actual flow may be affected by upstream water management.

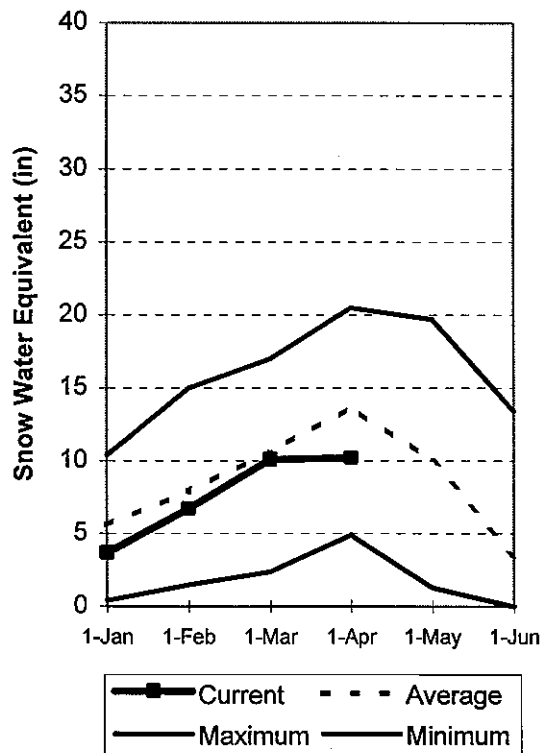
## Uintah Basin and Dagget SCD's

### Apr 1, 1999

Snowpacks across the Uintah Basin and North Slope areas are below average at 77%, down 21% relative to last month. The North Slope ranges from 76% to 92% and the Uintah Basin ranges from 50% to 93% of average. The March snowpack increase was just 3% of normal. Snowpacks in these areas are 72% of last year. Precipitation during March was 45% of normal, bringing the seasonal accumulation (Oct-Mar) to 94% of average. Reservoir storage is excellent at 89% of capacity. Water supply conditions are now below normal and a marginal runoff season is expected.

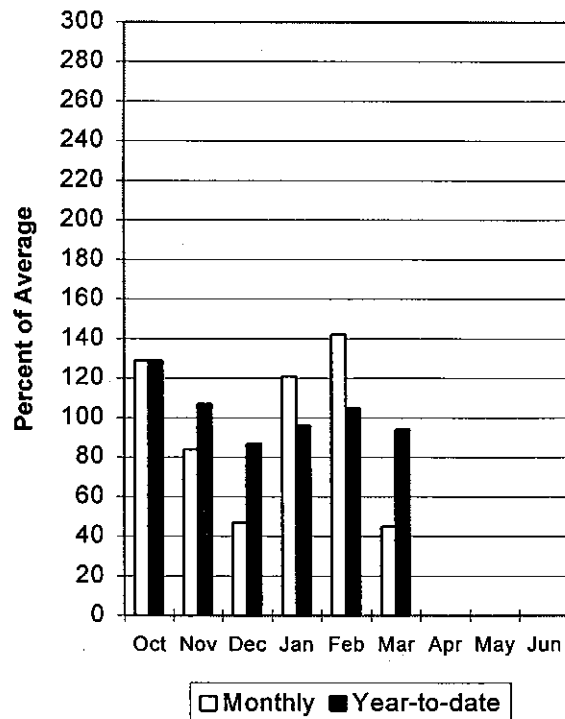
#### Mountain Snowpack

4/1/99



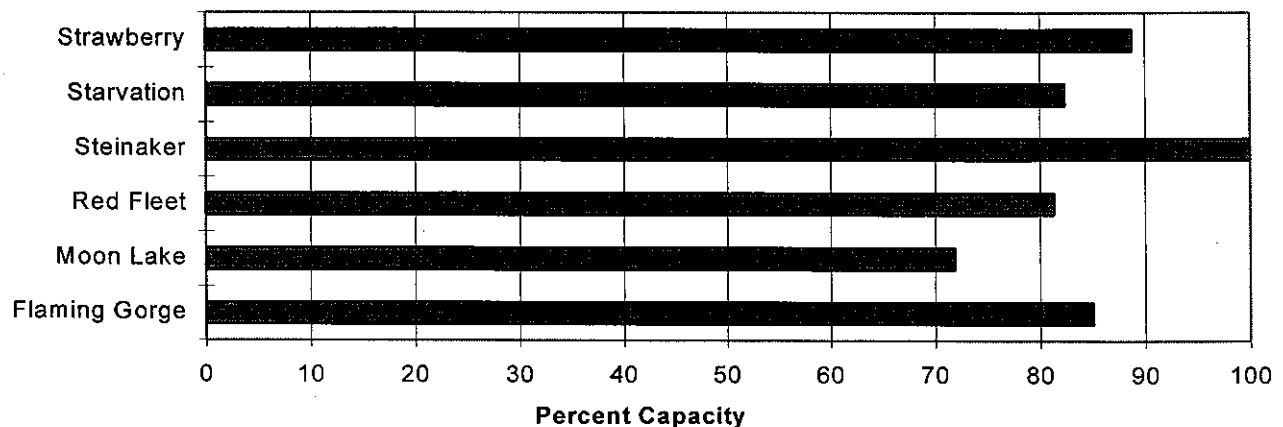
#### Precipitation

4/1/99



#### Reservoir Storage

4/1/99



UINTAH BASIN & DAGGET SCD'S  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Blacks Fork nr Robertson	APR-JUL	60	74	83	87	92	106	95
EF of Smiths Fork nr Robertson	APR-JUL	19.8	23	25	83	28	32	30
Flaming Gorge Reservoir Inflow	APR-JUL	909	1128	1250	105	1372	1591	1196
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	8.3	12.3	15.0	76	17.7	22	19.8
Ashley Creek nr Vernal	APR-JUL	21	31	38	75	45	55	51
WF DUCHESNE RIVER nr Hanna	APR-JUL	7.7	11.2	14.0	54	17.1	22	26
DUCHESNE R nr Tabiona	APR-JUL	53	66	75	71	84	97	105
UPPER STILLWATER RESV inflow	APR-JUL	49	62	70	86	79	91	81
ROCK CK nr Mountain Home	APR-JUL	61	72	80	85	88	99	94
DUCHESNE R abv Knight Diversion	APR-JUL	98	129	150	79	171	202	189
STRAWBERRY RES nr Soldier Springs	APR-JUL	10.5	16.8	22	37	28	38	59
CURRENT CREEK RESV Inflow	APR-JUL	5.1	8.6	11.0	52	13.4	16.9	21
STARVATION RESERVOIR inflow	APR-JUL	16.0	39	54	46	69	92	117
MOON LAKE Inflow	APR-JUL	44	54	60	87	66	76	69
Yellowstone River nr Altonah	APR-JUL	37	48	56	86	64	76	65
DUCHESNE R at Myton	APR-JUL	54	114	155	59	196	256	263
UINTA R nr Neola	APR-JUL	40	55	65	77	75	90	85
Whiterocks River nr Whiterocks	APR-JUL	26	38	45	78	53	64	58
DUCHESNE R nr Randlett	APR-JUL	75	94	190	58	286	387	328

UINTAH BASIN & DAGGET SCD'S  
Reservoir Storage (1000 AF) - End of March

UINTAH BASIN & DAGGET SCD'S  
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FLAMING GORGE	3749.0	3190.6	3235.0	---	UPPER GREEN RIVER in UTAH	6	68	76
MOON LAKE	49.5	35.6	48.5	32.0	ASHLEY CREEK	2	49	50
RED FLEET	25.7	20.9	20.5	---	BLACK'S FORK RIVER	2	94	92
STEINAKER	33.4	33.4	32.5	22.6	SHEEP CREEK	1	48	81
STARVATION	165.3	136.2	135.2	114.1	DUCHESNE RIVER	11	75	76
STRAWBERRY-ENLARGED	1105.9	982.0	993.3	---	LAKE FORK-YELLOWSTONE CRE	4	88	93
					STRAWBERRY RIVER	4	57	52
					UINTAH-WHITEROCKS RIVERS	2	77	85
					UINTAH BASIN & DAGGET SCD	17	72	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



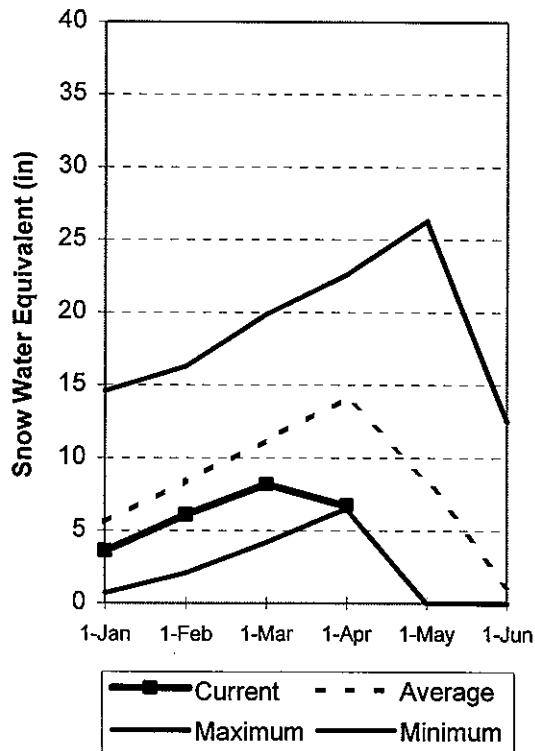
# Carbon, Emery, Wayne, Grand and San Juan Co.

Apr 1, 1999

Snowpacks in this region are at 48% of average, down 25% relative to last month and only 48% of last year. Individual sites range from 0% to 75% of average. Almost 40% of all snow sites have already melted out. The March Snowpack increase was a -52% of average. These figures are a very slim 0.2 inch higher than the 1977 drought year. Precipitation during March was much below average at 27%, bringing the seasonal accumulation (Oct-Mar) to 76% of normal. Reservoir storage is in excellent shape at 75% of capacity. General water supply conditions are the worst since 1977. Water users on direct streamflow should prepare for a poor runoff season. Snowmelt runoff in some areas is essentially over.

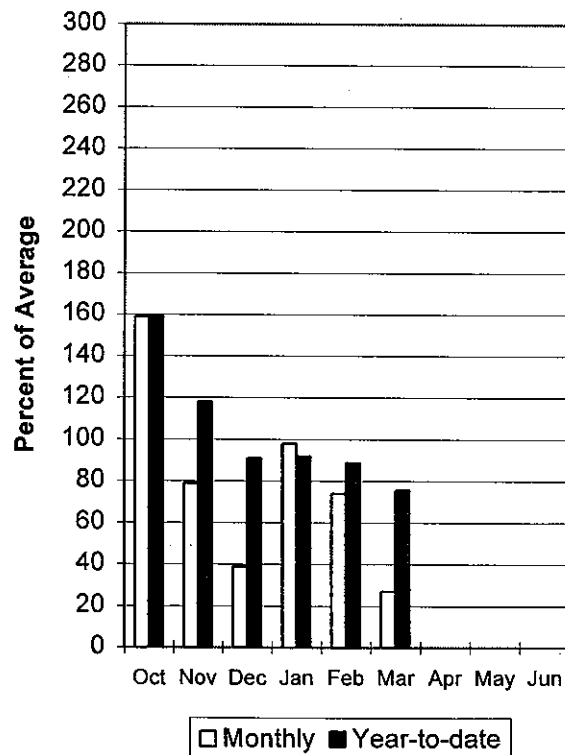
## Mountain Snowpack

4/1/99



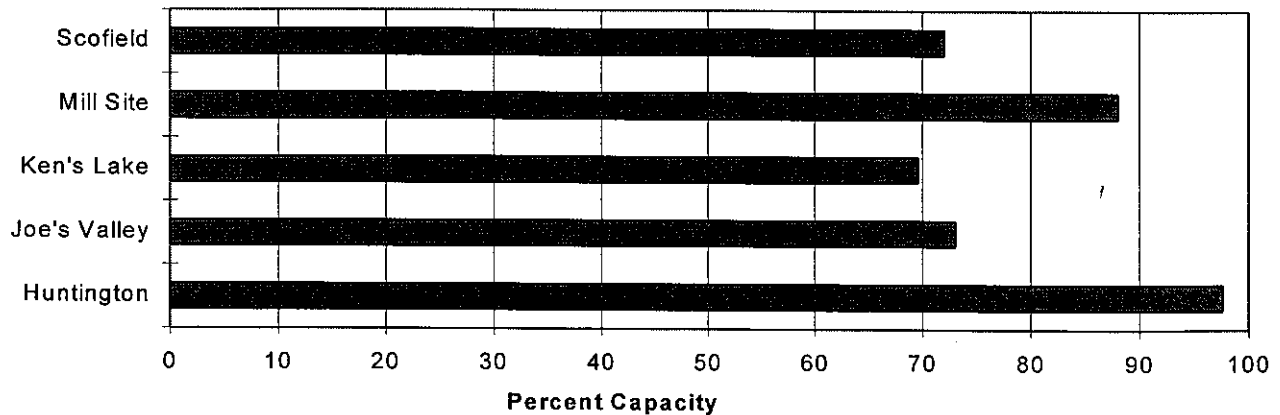
## Precipitation

4/1/99



## Reservoir Storage

4/1/99



CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		90% 70%		Chance Of Exceeding *		30% 10%		30-Yr Avg.
		(1000AF)	(1000AF)	50% (Most Probable)	(% AVG.)	(1000AF)	(1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	3.2	4.9	6.0	51	7.1	8.8	11.7
Scofield Reservoir inflow	APR-JUL	8.8	16.9	20	46	23	48	44
White River blw Tabbyune Creek	APR-JUL	2.9	4.9	6.5	35	8.3	11.5	18.7
Green River at Green River, UT	APR-JUL	1665	2281	2700	86	3119	3735	3151
Electric Lake inflow	APR-JUL	4.1	5.4	6.5	43	7.7	9.7	15.1
HUNTINGTON CK nr Huntington	APR-JUL	8.2	15.5	19.0	46	23	43	41
JOE'S VALLEY RESV Inflow	APR-JUL	6.7	17.0	24	45	31	41	53
Ferron Creek nr Ferron	APR-JUL	13.0	16.4	19.0	49	22	26	39
Colorado River nr Cisco	APR-JUL	1240	1979	2500	61	3021	3760	4132
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	0.96	1.20	1.50	25	2.52	4.03	6.00
Indian Creek Tunnel nr Monticello	MAR-JUL	0.21	0.27	0.35	41	0.57	0.89	0.86
Indian Creek abv Cottonwood Creek	MAR-JUL	0.41	0.46	0.50	20	1.30	2.48	2.55
Seven Mile Creek nr Fish Lake	APR-JUL	1.17	1.50	3.00	46	4.50	6.72	6.50
Muddy Creek nr Emery	APR-JUL	3.9	4.9	7.5	38	10.1	13.7	19.6
North Ck ab R.S. nr Monticello	MAR-JUL	0.09	0.12	0.25	19	0.44	0.83	1.35
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	0.09	0.11	0.25	19	0.44	0.83	1.31
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	0.66	0.84	1.00	17	2.12	3.70	6.07
San Juan River nr Bluff	APR-JUL	118	337	485	42	633	852	1152

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of March

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	4.1	4.2	3.8	PRICE RIVER	3	60	58
JOE'S VALLEY	61.6	45.0	49.4	45.6	SAN RAFAEL RIVER	3	62	60
KEN'S LAKE	2.3	1.6	2.3	---	MUDDY CREEK	1	46	45
MILL SITE	16.7	14.7	16.7	4.6	FREMONT RIVER	3	57	55
SCOFIELD	65.8	47.4	45.2	33.3	LASAL MOUNTAINS	1	0	0
					BLUE MOUNTAINS	1	7	10
					WILLOW CREEK	1	5	7
					CARBON, EMERY, WAYNE, GRA	13	48	48

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

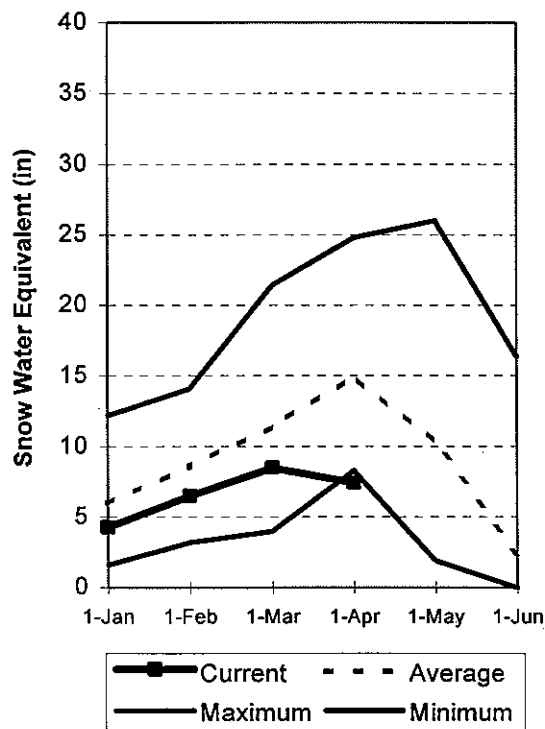
## Sevier and Beaver River Basins

Apr 1, 1999

Snowpacks on the Sevier River Basin are much below normal at 52% of average, down 25% relative to last month, and just 44% of last year. This is the lowest snowpack for which we have continuous records, lower than the 1977 drought. Low elevation snowpacks (less than 8000 ft) have melted off. The March snowpack increase was a -31% of normal. Individual sites range from 0% to 77% of average. Precipitation during March was much below average at 34% of normal, bringing the seasonal accumulation (Oct-Mar) to 74% of average. Reservoir storage is in excellent condition at 95% of capacity. General snowmelt water supply conditions are exceptionally poor. Those on direct streamflow will have a marginal year.

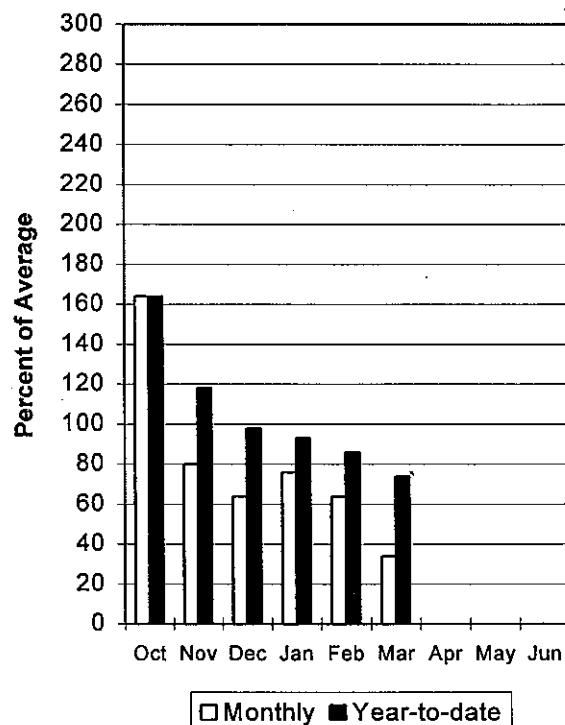
### Mountain Snowpack

4/1/99



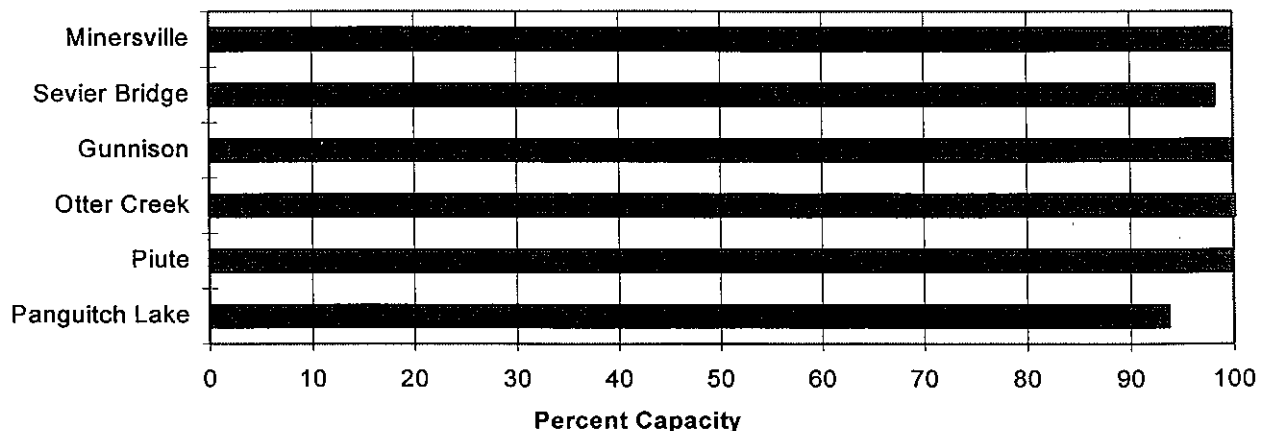
### Precipitation

4/1/99



### Reservoir Storage

4/1/99



SEVIER & BEAVER RIVER BASINS  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SEVIER R at Hatch	APR-JUL	5.9	16.6	23	43	29	40	54
SEVIER R nr Circleville	APR-JUL	6.8	22	32	43	42	57	75
SEVIER R nr Kingston	APR-JUL	5.0	27	33	40	39	61	83
ANTIMONY CK nr Antimony	APR-JUL	1.11	2.65	3.50	47	4.35	5.92	7.40
E F SEVIER R nr Kingston	APR-JUL	5.1	9.6	13.5	45	21	35	30
SEVIER R blw Piute Dam	APR-JUL	21		55	48		112	115
CLEAR CK nr Sevier	APR-JUL	0.8	6.6	10.0	48	13.4	19.1	21
SALINA CK at Salina	APR-JUL	0.5	3.5	7.0	40	14.4	29	17.6
PLEASANT CK nr Pleasant	APR-JUL	2.04	3.26	3.90	46	4.54	5.78	8.50
EPHRAIM CK nr Ephraim	APR-JUL	0.6	3.5	5.0	40	6.5	9.5	12.6
SEVIER R nr Gunnison	APR-JUL	65	72	100	42	174	308	239
CHICKEN CK nr Levan	APR-JUL	1.46	1.87	2.20	47	2.59	3.31	4.70
OAK CK nr Oak City (Acre Feet)	APR-JUL	570	723	850	48	999	1268	1777
BEAVER R nr Beaver	APR-JUL	10.7	12.6	14.0	54	15.6	18.3	26
MINERSVILLE RESERVOIR Inflow	APR-JUL	6.6	7.4	8.0	48	8.6	9.7	16.7

SEVIER & BEAVER RIVER BASINS  
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
GUNNISON	20.3	20.3	20.3	16.3
MINERSVILLE (RkyFd)	23.3	23.3	23.3	14.3
OTTER CREEK	52.5	52.6	52.5	35.8
PIUTE	71.8	71.7	71.6	46.2
SEVIER BRIDGE	236.0	231.9	230.8	136.2
PANGUITCH LAKE	22.3	20.9	16.7	---

SEVIER & BEAVER RIVER BASINS  
Watershed Snowpack Analysis - April 1, 1999

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
UPPER SEVIER RIVER (south	8	39	49
EAST FORK SEVIER RIVER	3	38	46
SOUTH FORK SEVIER RIVER	5	39	50
LOWER SEVIER RIVER (inclu	6	47	51
BEAVER RIVER	2	50	65
SEVIER & BEAVER RIVER BAS	16	44	52

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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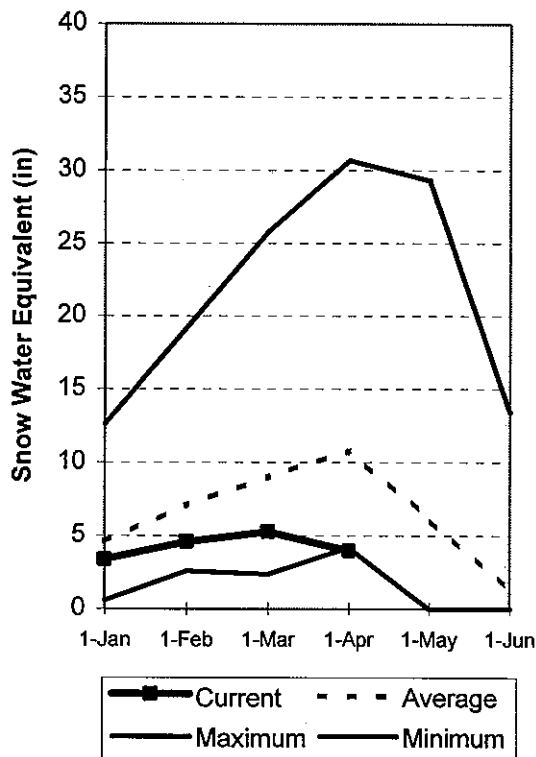
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
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# **E. Garfield, Kane, Washington, & Iron co.** **Apr 1, 1999**

Snowpacks in this region are much below normal at 37% of average, down 22% relative to last month and about 29% of last year. Individual sites range from 0% to 75% of average. This is the lowest April 1 snowpack of record, eclipsing the 1977 drought year. The March increase in snowpack was -72% of normal. Precipitation was bone dry during March at just 16% of average, bringing the seasonal accumulation (Oct-Mar) to 64% of normal. Reservoir storage is in excellent shape at 92% of capacity. General water supply conditions are much below average. Water users on direct streamflow should prepare for a poor runoff season.

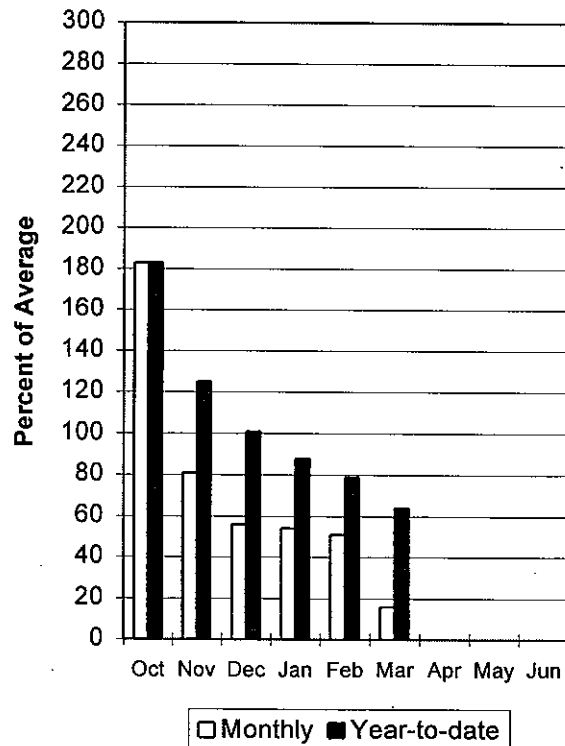
## **Mountain Snowpack**

4/1/99



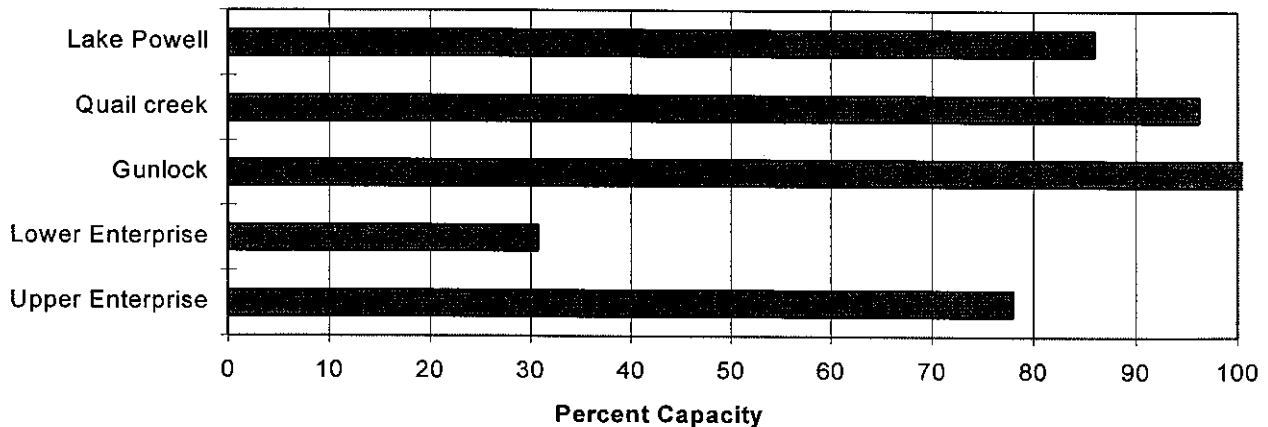
## **Precipitation**

4/1/99



## **Reservoir Storage**

4/1/99



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Lake Powell inflow	APR-JUL	2385	3783	4800	62	5817	7180	7735
Virgin River nr Virgin	APR-JUL	9.9	13.4	18.0	27	23	40	66
Virgin River nr Hurricane	APR-JUL	7.9	11.6	15.0	21	22	50	72
Santa Clara River nr Pine Valley	APR-JUL	0.32	0.61	1.00	19	1.49	3.50	5.30
Coal Creek nr Cedar City	APR-JUL	3.9	5.2	6.9	37	8.8	15.8	18.8

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Reservoir Storage (1000 AF) - End of March

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK		NO REPORT			VIRGIN RIVER	5	25	31
LAKE POWELL	24322.0	20916.0	20273.0	---	PAROWAN	2	45	55
QUAIL CREEK	40.0	38.5	40.0	---	ENTERPRISE TO NEW HARMONY	2	2	5
UPPER ENTERPRISE	10.0	7.8	10.0	---	COAL CREEK	2	29	33
LOWER ENTERPRISE	2.6	0.8	2.6	---	ESCALANTE RIVER	2	58	65
					E. GARFIELD, KANE, WASHIN	9	29	37

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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 (2) - The value is natural flow - actual flow may be affected by upstream water management.

SNOW COURSE DATA  
FOR THE STATE OF UTAH  
As of April 1999

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
AGUA CANYON SNOTEL	8900	4/01	-	0.0	9.5	6.7	DRY FORK SNOTEL	7160	4/01	-	11.2	23.2	16.6
ALTA CENTRAL	8800	4/01	77	26.9	41.9	38.7	EAST WILLOW CREEK SN	8250	4/01	-	0.5	10.0	7.1
BEAVER DAMS SNOTEL	8000	4/01	-	1.5	9.1	12.3	FARMINGTON CN SNOTEL	8000	4/01	-	27.5	43.5	31.1
BEAVER DIVIDE SNOTEL	8280	4/01	-	6.4	10.6	11.4	FARMINGTON CANYON L.	6950	3/29	52	20.0	35.2	24.4
BEN LOMOND PK SNOTEL	8000	4/01	-	30.9	53.5	40.8	FARNSWORTH LK SNOTEL	9600	4/01	-	15.7	20.5	20.5
BEN LOMOND TR SNOTEL	6000	4/01	-	14.4	30.2	20.0	FISH LAKE	8700	3/27	1	0.7	11.0	8.3
BEVAN'S CABIN	6450	3/29	16	5.8	17.9	11.7	FIVE POINTS LAKE SNO	10920	4/01	-	17.6	19.0	17.5
BIG FLAT SNOTEL	10290	4/01	-	12.0	23.1	18.9	FRANCES FLATS	6700	3/30	28	12.2	25.8	14.5
BIRCH CROSSING	8100	4/02	3	1.1	6.8	6.0	G.B.R.C. HEADQUARTER	8700	3/27	24	8.4	16.1	17.2
BLACK FLAT-U.M. CK S	9400	4/01	-	3.6	6.9	10.3	G.B.R.C. MEADOWS	10000	3/28	48	16.2	22.7	24.2
BLACK'S FORK GS-EF	9340	3/28	23	7.4	11.3	9.6	GARDEN CITY SUMMIT	7600	3/29	47	15.6	16.6	17.6
BLACK'S FORK JUNCTN	8930	3/28	30	8.9	9.5	9.4	GEORGE CREEK	8840	3/31	52	17.9	23.4	23.1
BOX CREEK SNOTEL	9800	4/01	-	7.9	16.0	13.8	GOOSEBERRY R.S.	8400	3/27	20	6.9	12.0	12.5
BRYAN HEAD	10000	3/27	38	11.5	25.9	21.2	GOOSEBERRY R.S. SNOT	7900	4/01	-	0.0	7.2	8.5
BRIGHTON SNOTEL	8750	4/01	-	18.5	25.5	23.1	HARDSCRABBLE SNOTEL	7250	4/01	-	10.9	19.6	18.2
BRIGHTON CABIN	8700	4/01	62	20.6	28.0	27.3	HARRIS FLAT SNOTEL	7700	4/01	-	0.0	9.6	6.5
BROWN DUCK SNOTEL	10600	4/01	-	17.1	19.0	18.9	HAYDEN FORK SNOTEL	9100	4/01	-	14.7	12.9	16.5
BRUCE CANYON	8000	3/30	0	0.0	3.9	3.6	HENRY'S FORK	10000	3/28	34	9.9	16.2	14.0
BUCK FLAT SNOTEL	9800	4/01	-	12.1	19.6	18.1	HEWINTA SNOTEL	9500	4/01	-	11.5	11.0	11.5
BUCK PASTURE	9700	3/28	43	14.2	19.6	16.1	HICKERSON PARK SNOTE	9100	4/01	-	5.6	11.7	6.9
BUCKBOARD FLAT	9000	3/30	12	3.2	12.0	12.6	HIDDEN SPRINGS	5500	3/30	0	0.0	5.5	3.6
BUG LAKE SNOTEL	7950	4/01	-	21.7	19.9	21.3	HOBBLE CREEK SUMMIT	7420	3/28	20	7.2	16.0	14.3
BURT'S-MILLER RANCH	7900	3/28	10	3.8	2.3	5.7	HOBLE-IN-ROCK SNOTEL	9150	4/01	-	5.9	8.9	6.5
CAMP JACKSON SNOTEL	8600	4/01	-	1.0	13.6	9.8	HORSE RIDGE SNOTEL	8260	4/01	-	20.7	22.9	23.3
CASTLE VALLEY SNOTEL	9580	4/01	-	8.5	16.6	14.4	HUNTINGTON-HORSESHOE	9800	3/28	40	14.7	27.5	24.2
CHALK CK #1 SNOTEL	9100	4/01	-	21.6	23.7	23.9	INDIAN CANYON SNOTEL	9100	4/01	-	5.8	12.6	11.8
CHALK CK #2 SNOTEL	8200	4/01	-	16.1	16.3	15.8	JOHNSON VALLEY	8850	3/27	1	0.4	8.6	7.1
CHALK CREEK #3	7500	3/28	14	4.7	6.3	7.5	KILFOIL CREEK	7300	3/29	40	13.5	14.7	14.2
CHPETA SNOTEL	10300	4/01	-	11.9	16.3	14.3	KILLANY CANYON	6300	3/29	0	0.0	8.0	-
CITY CREEK	7500	3/30	44	20.4	31.9	27.3	KIMBERLY MINE SNOTEL	9300	4/01	-	9.5	17.7	16.2
CLEAR CK RIDG #1 SNT	9200	4/01	-	13.2	19.9	19.8	KING'S CABIN SNOTEL	8730	4/01	-	5.6	12.0	11.8
CLEAR CK RIDG #2 SNT	8000	4/01	-	9.6	15.7	14.7	KLONDIKE NARROWS	7400	3/29	55	21.4	17.6	19.9
CORRAL	8200	3/28	4	0.9	11.2	9.4	KOLODI SNOTEL	9250	4/01	-	8.9	30.1	23.6
CURRENT CREEK SNOTEL	8000	4/01	-	4.2	7.9	11.0	LAKEFORK #1 SNOTEL	10100	4/01	-	12.2	17.7	12.1
DANIELS-STRAWBERRY S	8000	4/01	-	10.0	16.3	18.3	LAKEFORK BASIN SNOTE	10900	4/01	-	19.7	20.2	23.4
DESERET PEAK SNOTEL	9250	4/01	-	11.8	26.9	21.7	LAKEFORK MOUNTAIN #3	8400	3/24	7	2.6	6.5	6.1
DILL'S CAMP SNOTEL	9200	4/01	-	6.8	14.7	15.1	LAMBS CANYON	7400	3/31	34	11.9	17.6	17.0
DONKEY RESERVOIR SNO	9800	4/01	-	6.3	9.1	8.4	LASAL MOUNTAIN LOWER	8800	3/30	0	0.0	9.6	9.7
DRY BREAD POND SNOTEL	8350	4/01	-	17.2	18.7	19.9	LASAL MOUNTAIN SNOTE	9850	4/01	-	0.0	12.9	13.8

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
LILY LAKE SNOTEL	9050	4/01	-	11.8	14.8	13.4	TRIAL LAKE SNOTEL	9960	4/01	-	21.0	21.0	25.0
LITTLE BEAR LOWER	6000	3/29	19	7.9	15.6	9.7	TROUT CREEK SNOTEL	9400	4/01	-	6.3	12.2	11.8
LITTLE BEAR SNOTEL	6550	4/01	-	6.9	16.4	12.4	UPPER JOES VALLEY	8900	3/28	12	4.2	9.4	10.4
LITTLE GRASSY SNOTEL	6100	4/01	-	0.0	2.7	.1	VERNON CREEK SNOTEL	7500	4/01	-	4.3	19.3	12.1
LONG FLAT SNOTEL	8000	4/01	-	0.3	9.6	5.5	VIPONT	7670	4/01	42	14.3	15.4	15.8
LONG VALLEY JCT. SNT	7500	4/01	-	0.0	3.4	.1	WEBSTER FLAT SNOTEL	9200	4/01	-	0.3	14.7	16.5
LOOKOUT PEAK SNOTEL	8200	4/01	-	21.7	31.9	26.5	WHITE RIVER #1 SNOTE	8550	4/01	-	6.4	12.2	13.9
LOST CREEK RESERVOIR	8300	3/29	1	0.2	2.5	1.9	WHITE RIVER #3	7400	3/28	0	0.0	1.2	7.0
MAMMOTH-CORTONWD SNT	8800	4/01	-	12.2	20.5	21.0	WIDTSONE #3 SNOTEL	9500	4/01	-	7.1	14.0	12.1
MERCHANT VALLEY SNOT	8750	4/01	-	8.4	17.3	12.4	WRIGLEY CREEK	9000	3/27	21	6.0	10.8	11.4
MIDDLE CANYON	7000	3/29	20	7.9	20.8	14.4	YANKEE RESERVOIR	8700	3/27	14	4.6	12.4	10.0
MIDWAY VALLEY SNOTEL	9800	4/01	-	13.1	31.5	24.6							
MILL CREEK	6950	3/31	54	18.2	24.4	20.9							
MILL-D NORTH SNOTEL	8960	4/01	-	19.6	29.2	24.1							
MILL-D SOUTH FORK	7400	3/30	35	14.4	21.1	19.6							
MINING FORK SNOTEL	8000	4/01	-	11.0	27.3	16.4							
MONTA CRISTO SNOTEL	8960	4/01	-	26.0	30.2	29.9							
MOSBY MTN. SNOTEL	9500	4/01	-	9.8	11.8	11.3							
MT. BALDY R.S.	9500	3/27	44	14.6	25.2	24.3							
MUD CREEK #2	8600	3/28	27	8.2	13.0	13.7							
OAK CREEK	7760	3/27	24	7.1	14.0	12.9							
PANGUITCH LAKE R.S.	8200	3/27	0	0.0	3.2	4.0							
PARLEY'S CANYON SUM.	7500	3/31	41	14.3	21.1	18.8							
PARLEY'S CANYON SNOT	7500	4/01	-	10.3	15.5	19.1							
PAYSON R.S. SNOTEL	8050	4/01	-	10.1	18.4	22.6							
PICKLE KEG SNOTEL	9600	4/01	-	9.7	20.7	18.8							
PINE CREEK SNOTEL	8800	4/01	-	12.7	31.2	21.4							
RED PINE RIDGE SNOTE	9200	4/01	-	9.4	14.3	18.0							
REDDEN MINE LOWER	8500	3/28	36	14.0	18.6	18.2							
REES'S FLAT	7300	3/27	21	7.3	12.9	13.3							
ROCK CREEK SNOTEL	7900	4/01	-	6.7	9.0	8.6							
ROCKY BN-SETTLEMT SN	8900	4/01	-	16.2	33.0	26.0							
SEELEY CREEK SNOTEL	10000	4/01	-	9.1	15.8	15.3							
SILVER LAKE (BRIGHT.)	8730	4/01	63	23.6	30.1	25.8							
SMITH MOREHOUSE SNTL	7600	4/01	-	12.4	14.3	14.6							
SNOWBIRD SNOTEL	9700	4/01	-	31.3	36.8	33.5							
SPIRIT LAKE	10300	3/28	34	10.2	16.4	13.5							
SQUAW SPRINGS	9300	3/27	0	0.0	8.8	7.2							
STEEL CREEK PARK SNO	10100	4/01	-	14.3	16.5	16.6							
STILLWATER CAMP	8550	3/28	27	9.6	9.8	10.8							
STRAWBERRY DIVIDE SN	8400	4/01	-	11.5	18.6	19.8							
SUSC RANCH	8200	4/02	0	0.0	13.3	7.0							
TAIL POLES	8800	4/02	27	9.7	19.3	14.7							
THAYNES CANYON SNOTL	9200	4/01	-	21.9	26.0	22.1							
THISTLE FLAT	8500	3/27	29	9.1	17.1	17.3							
TIMBERLINE	9100	3/28	23	6.1	15.8	14.8							
TIMPANOGOS DIVIDE SN	8140	4/01	-	15.2	23.2	25.5							
TONY GROVE LK SNOTEL	8400	4/01	-	43.3	41.6	36.9							
TONY GROVE R.S.	6250	3/29	37	14.0	12.0	11.5							
TRIAL LAKE	9960	3/28	57	19.7	22.7	24.2							



<b>UTAH SURFACE</b>	<b>WATER</b>	<b>SUPPLY</b>	<b>INDEX</b>	
<b>Snow Surveys</b>				
<b>Basin or Region</b>	<b>SWSI/%</b>	<b>Percentile</b>	<b>Years with</b>	<b>Agricultural Water</b>
			<b>Similar SWSI</b>	<b>Shortage May Occur</b>
				<b>If SWSI Less Than</b>
<b>Bear River</b>	<b>-0.5</b>	<b>44%</b>	<b>87,98,70,68</b>	<b>-3.8</b>
<b>Ogden River</b>	<b>-1.3</b>	<b>34%</b>	<b>70,96,66,76</b>	
<b>Weber River</b>	<b>-1.3</b>	<b>34%</b>	<b>79,81,76,70</b>	
<b>Tooele Valley</b>	<b>NA</b>			
<b>Provo</b>	<b>0</b>	<b>50%</b>	<b>88,79,81,70</b>	
<b>North Slope</b>	<b>NA</b>			
<b>West Uintah Basin</b>	<b>3.1</b>	<b>88%</b>	<b>98,97,86</b>	
<b>East Uintah Basin</b>	<b>-0.6</b>	<b>43%</b>	<b>81,91,85,82</b>	
<b>Price River</b>	<b>-1.4</b>	<b>33%</b>	<b>62,94,72,88</b>	
<b>San Rafael</b>	<b>-2.3</b>	<b>22%</b>	<b>90,89,81,95</b>	
<b>Moab</b>	<b>-3.7</b>	<b>6%</b>	<b>90,89</b>	
<b>Upper Sevier River</b>	<b>-0.9</b>	<b>40%</b>	<b>66,78,76,71</b>	
<b>Lower Sevier River</b>	<b>-0.6</b>	<b>43%</b>	<b>68,76,89,81</b>	
<b>Beaver River</b>	<b>-0.4</b>	<b>45%</b>	<b>62,67,71,78</b>	
<b>Virgin River</b>	<b>-1.6</b>	<b>31%</b>	<b>91,96,85,87</b>	
<b>Snow Surveys</b>			<b>SWSI Scale: -4 to 4</b>	
<b>245 N Jimmy Doolittle Rd</b>			<b>Percentile: 0 - 100%</b>	
<b>Salt Lake City, UT</b>				
<b>(801) 524-5213</b>				



*Issued by*

**Pearlie S. Reed  
Chief  
Natural Resources Conservation Service  
U.S. Department of Agriculture**

*Released by*

**Phillip J. Nelson  
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Salt Lake City, Utah**

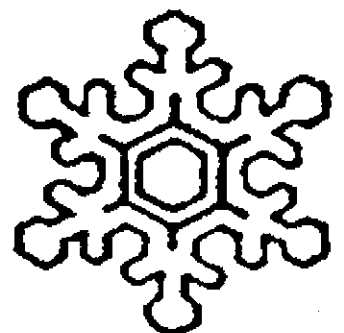
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245 North Jimmy Doolittle Road  
Salt Lake City, UT 84116



**Utah**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
Salt Lake City, UT



USDA United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

# Utah

## Basin Outlook Report

### May 1, 1999



# Basin Outlook Reports

## and

### Federal - State - Private

### Cooperative Snow Surveys

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*For more water supply and resource management information, contact:*

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#### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **STATE OF UTAH GENERAL OUTLOOK**

**May 1, 1999**

## **SUMMARY**

April, cool and very wet, came in the opposite of the bone dry March. Snowpacks that had been melting stopped and some actually accumulated a little additional snow water equivalent. April typically starts the snowmelt season and as a result, the averages decrease substantially. If an April, such as this cool, wet one occurs, with very little snow melting, then the basin snowpack percentages increase dramatically. Snowpacks across the state are up 30% to 50% relative to the April first basin percentage numbers and most of this apparent increase is not due to additional snowpack, but to the lack of snowmelt during April. The bottom line is that most basins do not have significantly more snowpack than last month and as a result, do not have much greater expected streamflows even though the current snowpacks are closer to average conditions. Snowpacks range from 123% on the Bear to 77% of average on the Virgin. Most low elevation snowpacks have melted, even in the north which greatly decreases the potential for high peak flows. A very wet spring and early summer could mitigate the affects of these low snowpacks. Precipitation during April was much above normal statewide at 160% of average. Seasonal precipitation, (Oct-Apr) is near normal at 97% of average. Reservoir storage is generally in excellent condition at 88% of capacity. Most reservoirs in southern Utah are at 95% of capacity or higher. Most operators are following a conservative strategy in anticipation of a marginal runoff year. Streamflow forecasts call for near to below normal April-July runoff in the north and much below average streamflow in the south.

## **SNOWPACK**

May first snowpacks in Utah, as measured by the NRCS SNOTEL system, are near average in northern Utah, up 30% to 40% relative to last month. In the south, snowpacks are near to below average, 77% to 99% of normal, up 50% relative to last month. April had a little snowpack accumulation and very little snowmelt which accounts for the dramatic increase in basin percentages. The total amount of snowpack available for melting (which in southern Utah is extremely low) has not changed dramatically over the past month, the melt has just been postponed a few weeks. Late snowmelt seasons are not uncommon in Utah, occurring about 33% of the time.

## **PRECIPITATION**

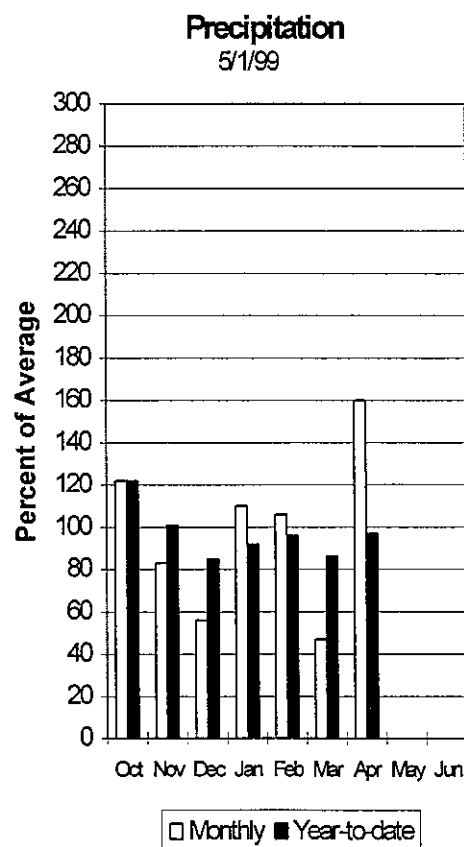
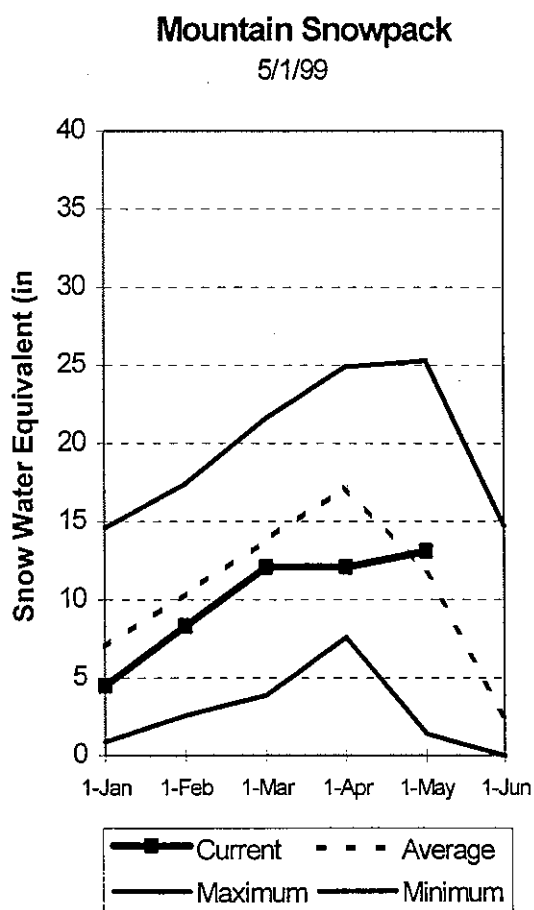
Mountain precipitation in April, as measured by the NRCS SNOTEL system, was much above normal statewide, ranging from 142% to 199% of average. This brings the seasonal accumulation (Oct-Apr) to 97% of average statewide, up 11% from last month.

## **RESERVOIRS**

Storage in 41 of Utah's key irrigation reservoirs is at 88% of capacity. Most smaller reservoirs are full and spilling. Many reservoirs are retaining as much water as possible in anticipation of a poor runoff season.

## STREAMFLOW

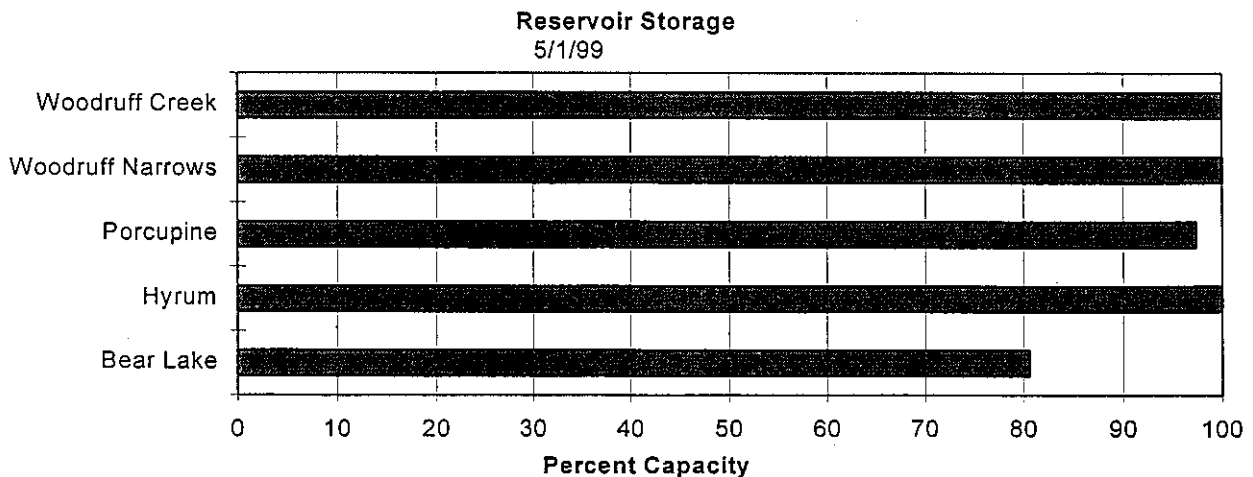
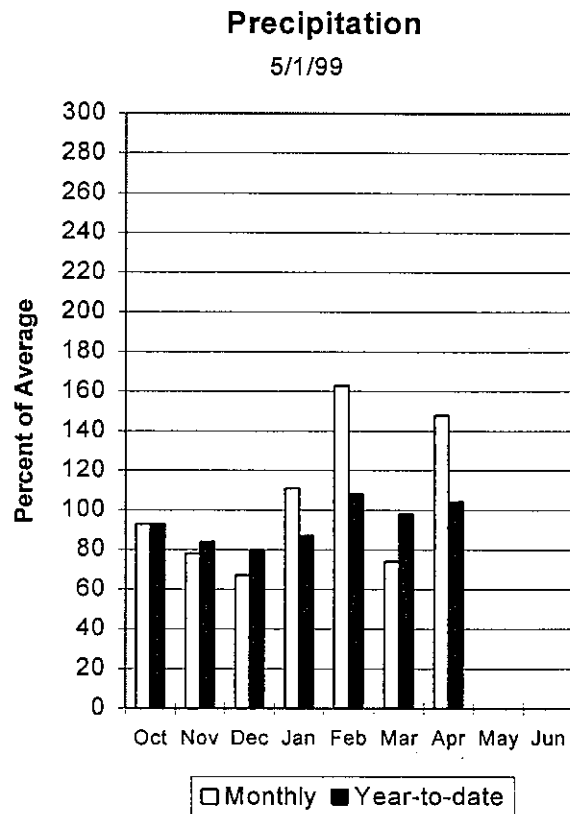
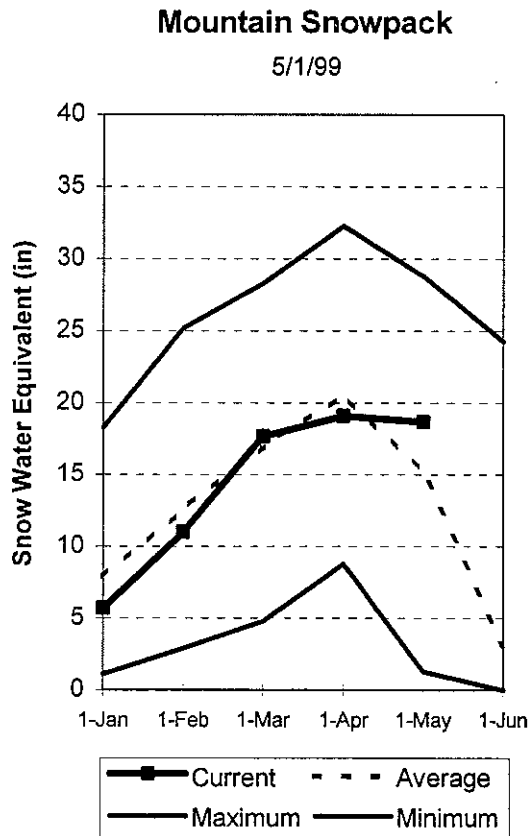
Snowmelt streamflows are expected to be near to below average in northern Utah and below to much below average in southern Utah. Streamflows will most likely have lower peaks and low volumes this runoff season. Those on direct streamflow should prepare for a very poor season.





## Bear River Basin May 1, 1999

Snowpacks on the Bear River Basin are above average at 123% of normal, up 28% relative to last month, about 120% of last year. Specific sites range from 0% to 209% of normal. April was cool and very wet which resulted in a very small 8% of average snowmelt for the month. April precipitation was much above normal at 148%, which brings the seasonal accumulation (Oct-Apr) to 104% of average. Reservoir storage is at 82% capacity, with small reservoirs, including Porcupine, essentially full. In general, water supply conditions are near average and a good water year is expected.



BEAR RIVER BASIN  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Bear R nr UT-WY State Line	APR-JUL	102	110	115	100	121	130	115
BEAR R nr Woodruff, UT	APR-JUL	98	127	150	101	178	229	149
BIG CK nr Randolph	APR-JUL	0.36	2.47	3.90	103	5.33	7.44	3.80
BEAR R nr Randolph, UT	APR-JUL	70	100	120	102	140	170	118
SMITHS FK nr Border, WY	APR-JUL	85	98	108	106	119	138	102
THOMAS FK nr WY-ID State Line (Disc.	APR-JUL	21	28	33	100	39	51	33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	216	263	295	102	327	374	288
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	8.6	10.6	12.2	100	14.0	17.3	12.2
CUB R nr Preston	APR-JUL	40	45	48	102	51	56	47
L BEAR RIVER at Paradise, UT	APR-JUL	373	433	480	108	532	618	446
LOGAN R nr Logan	APR-JUL	107	115	121	113	127	137	107
BLACKSMITH Fk nr Hyrum	APR-JUL	47	52	56	104	60	67	54

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of April					BEAR RIVER BASIN Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	1145.4	1147.0	1052.0	BEAR RIVER, UPPER (abv Ha	6	120	131
HYRUM	15.3	15.3	14.8	13.2	BEAR RIVER, LOWER (blw Ha	8	122	117
PORCUPINE	11.3	11.0	11.3	9.5	LOGAN RIVER	4	121	147
WOODRUFF NARROWS	57.3	57.3	57.3	---	RAFT RIVER	1	105	155
WOODRUFF CREEK	4.0	4.0	4.0	---	BEAR RIVER BASIN	14	121	123

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

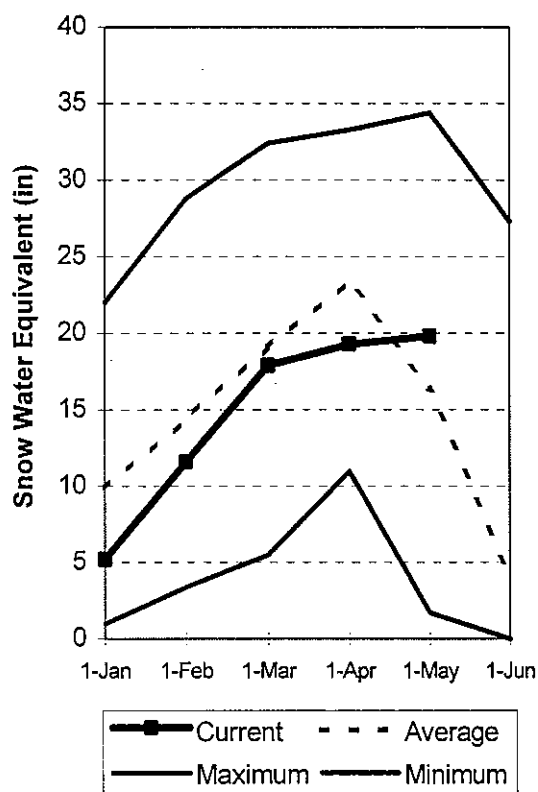
## Weber and Ogden River Basins

### May 1, 1999

Snowpack on the Weber and Ogden Watersheds is at 121% of average, up 38% relative to last month but still just 88% of last year. Individual sites range from 0% to near 223% of average. Low elevation snowpack is much below normal. A cool, wet April increased snowpacks instead of the normal melt scenario. Precipitation during April was much above normal at 143% of average, bringing the seasonal accumulation (Oct-Apr) to 98% of average. Reservoir storage on the Weber system is at 81% of capacity. General water supply conditions are slightly below normal and a below normal runoff season is expected.

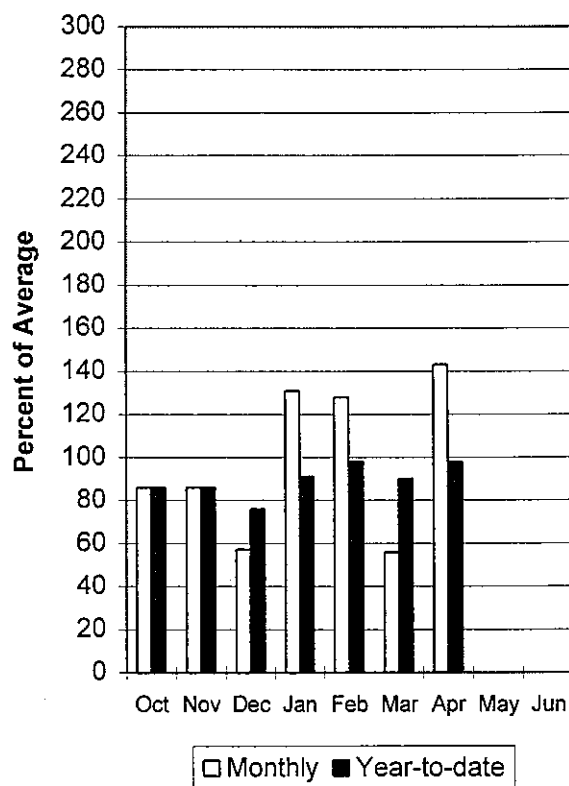
### Mountain Snowpack

5/1/99



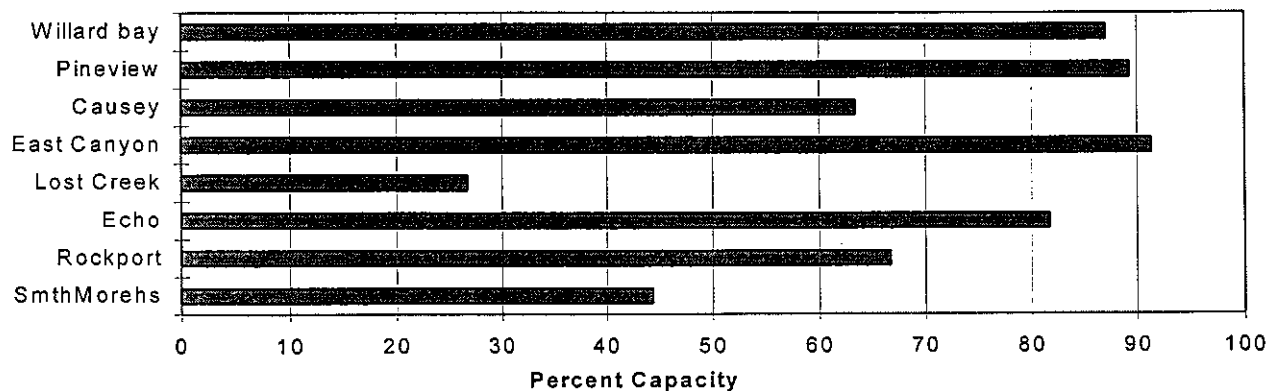
### Precipitation

5/1/99



### Reservoir Storage

5/1/99



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WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - May 1, 1999

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Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SMITH AND MOREHOUSE CK nr Oakley	APR-JUN	21	25	27	90	30	33	30
WEBER R nr Oakley	APR-JUL	94	104	110	90	116	126	122
ROCKPORT RESERVOIR inflow	APR-JUL	102	113	120	90	127	138	134
CHALK CK at Coalville, Ut	APR-JUL	31	39	44	100	49	57	44
WEBER R nr Coalville, Ut	APR-JUL	104	117	126	93	135	148	136
ECHO RESERVOIR Inflow	APR-JUL	123	147	164	93	181	205	176
LOST CK Res Inflow	APR-JUL	9.0	13.2	16.0	93	18.8	23	17.2
E CANYON CK nr Morgan	APR-JUL	19.0	24	28	93	32	37	30
WEBER R at Gateway	APR-JUL	261	302	330	95	358	399	347
S FORK OGDEN R nr Huntsville	APR-JUL	49	56	60	95	64	71	63
PINEVIEW RESERVOIR Inflow	APR-JUL	84	102	115	93	128	146	124
WHEELER CK nr Huntsville	APR-JUL	3.99	4.95	5.60	90	6.25	7.21	6.20

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WEBER & OGDEN WATERSHEDS in Utah  
Reservoir Storage (1000 AF) - End of April

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WEBER & OGDEN WATERSHEDS in Utah  
Watershed Snowpack Analysis - May 1, 1999

=====

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CAUSEY	7.1	4.5	4.7	2.6	OGDEN RIVER	4	76	104
EAST CANYON	49.5	45.2	38.6	41.5	WEBER RIVER	9	97	133
ECHO	73.9	60.4	44.8	54.2	WEBER & OGDEN WATERSHEDS	13	88	121
LOST CREEK	22.5	6.0	1.5	14.3				
PINEVIEW	110.1	98.3	74.5	76.6				
ROCKPORT	60.9	40.6	34.2	36.8				
WILLARD BAY	215.0	187.2	177.7	139.7				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

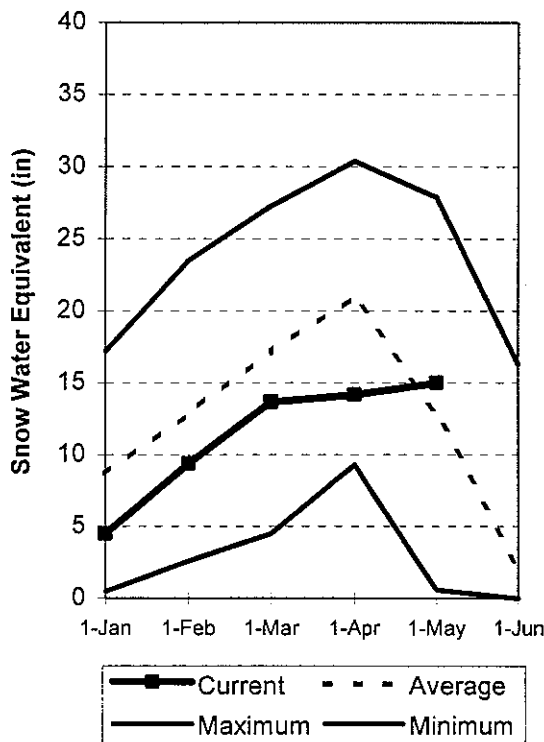
## Utah Lake, Jordan River & Tooele Valley Basins

### May 1, 1999

Snowpacks over these watersheds are near average at 109% of normal, up 41% relative to last month and just 71% of last year. Individual sites range from 0% to 248% of average. April was cool and very wet which actually increased snowpacks instead of the normal melting situation. Precipitation during April was much above normal at 142% , bringing the seasonal accumulation (Oct-Apr) to 96% of average. Reservoir storage is at 94% of capacity. Water supply conditions are below normal and below to much below average runoff is expected. Water users on direct streamflow should prepare for a marginal runoff season.

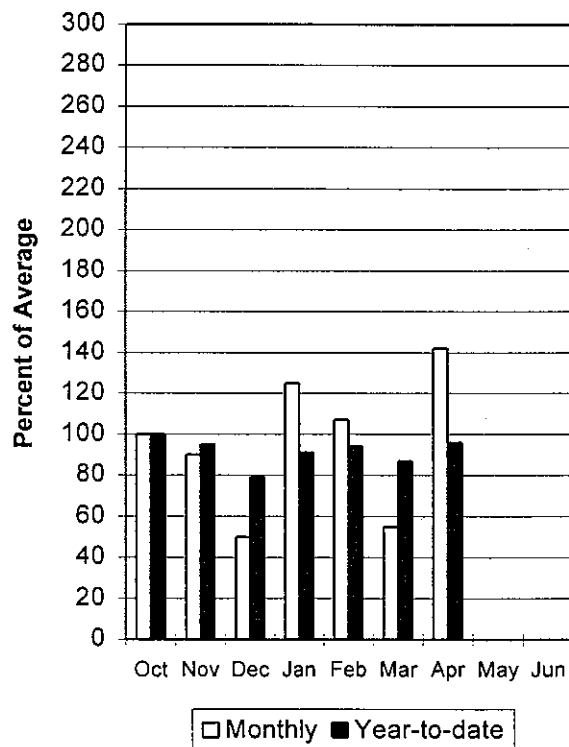
#### Mountain Snowpack

5/1/99



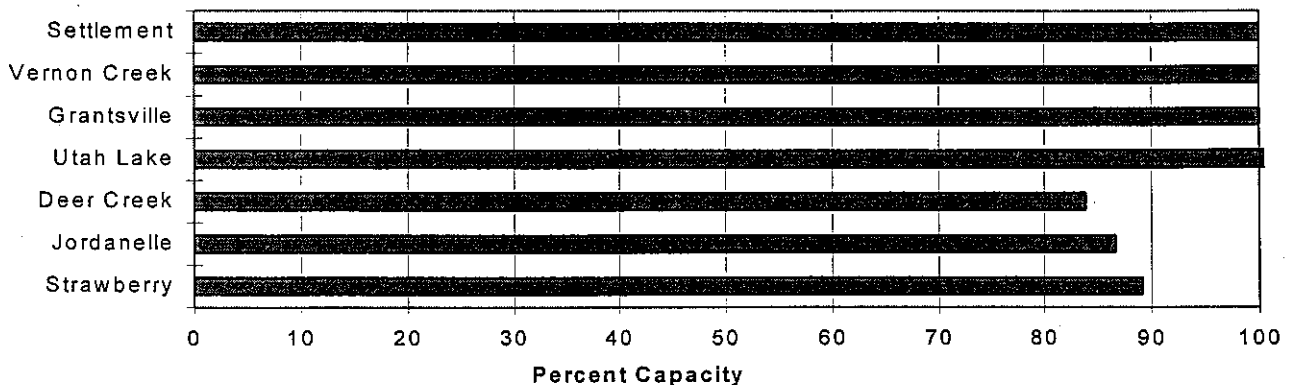
#### Precipitation

5/1/99



#### Reservoir Storage

5/1/99



UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PAYSON CK nr Payson	APR-JUL	1.01	1.76	2.70	61	3.88	5.72	4.40
SPANISH FORK nr Castilla	APR-JUL	10.4	29	48	65	67	100	74
HOBBLE CK nr Springville	APR-JUL	6.2	9.4	10.8	57	12.2	15.4	18.8
PROVO R nr Hailstone	APR-JUL	62		92	84		122	109
PROVO R below Deer Creek Dam	APR-JUL	58		102	80		147	128
AMERICAN FORK nr American Fk.	APR-JUL	17.0	21	23	72	25	29	32
UTAH LAKE inflow	APR-JUL	75		220	68		366	324
L COTTONWOOD CRK nr SLC	APR-JUL	28	33	35	90	38	42	39
BIG COTTONWOOD CRK nr SLC	APR-JUL	28	32	35	92	38	42	38
PARLEY'S CK nr SLC	APR-JUL	4.3	8.7	11.4	72	14.1	18.4	15.9
MILL CK nr SLC	APR-JUL	2.60	4.20	5.20	80	6.20	7.80	6.50
DELL FK nr SLC	APR-JUL	1.70	4.05	5.30	75	6.55	8.88	7.10
EMIGRATION CK nr SLC	APR-JUL	0.29	2.05	3.10	74	4.15	5.88	4.20
CITY CK nr SLC	APR-JUL	3.49	5.55	6.80	82	8.05	10.13	8.30
VERNON CK nr Vernon (in Acre Feet)	APR-JUL	600	814	1000	75	1229	1665	1340
SETTLEMENT CK nr Tooele (in Acre Fee	APR-JUL	1305	1473	1600	70	1738	1962	2300
S WILLOW CK nr Grantsville	APR-JUL	0.39	1.47	2.20	71	2.93	4.01	3.10

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Reservoir Storage (1000 AF) - End of April

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Watershed Snowpack Analysis - May 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	125.5	128.5	106.9	PROVO RIVER & UTAH LAKE	7	76	86
GRANTSVILLE	3.3	3.3	3.3	---	PROVO RIVER	4	75	80
SETTLEMENT CREEK	1.0	1.0	1.0	0.7	JORDAN RIVER & GREAT SALT	6	83	146
STRAWBERRY-ENLARGED	1105.9	986.3	1017.0	---	TOOELE VALLEY WATERSHEDS	4	49	89
UTAH LAKE	870.9	906.6	950.8	766.8	UTAH LAKE, JORDAN RIVER &	17	71	109
VERNON CREEK	0.6	0.6	0.6	0.6				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

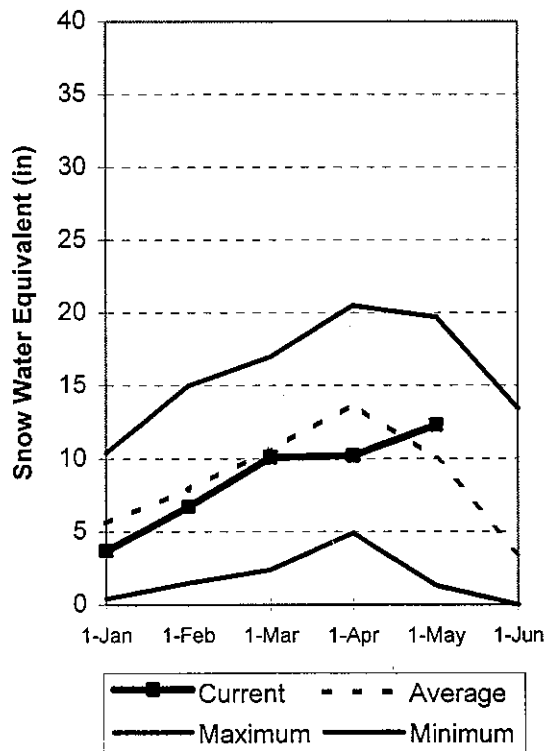
## Uintah Basin and Dagget SCD's

### May 1, 1999

Snowpacks across the Uintah Basin and North Slope areas are above average at 129%, up 52% relative to last month. The North Slope ranges from 78% to 387% and the Uintah Basin ranges from 0% to 132% of average. April was cool and very wet, increasing snowpack when they are typically melting. Snowpacks in these areas are 93% of last year. Precipitation during April was 199% of normal, bringing the seasonal accumulation (Oct-Apr) to 111% of average. Reservoir storage is excellent at 89% of capacity. Water supply conditions are now near normal and a near to below normal runoff season is expected.

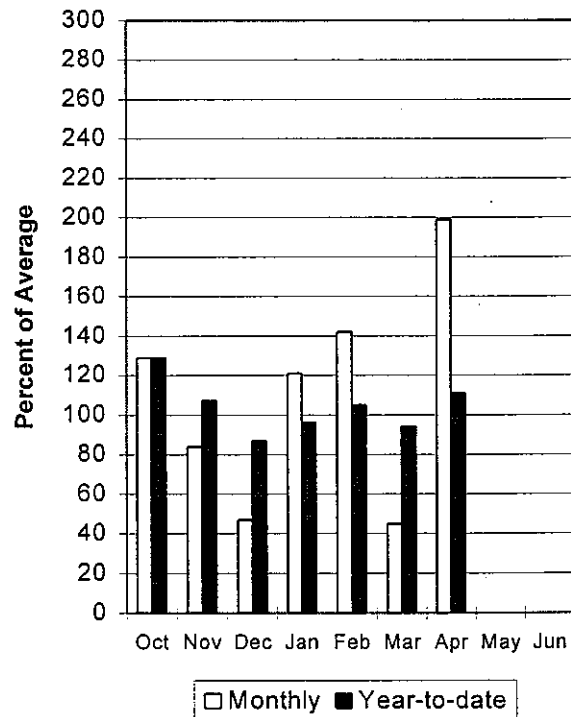
#### Mountain Snowpack

5/1/99



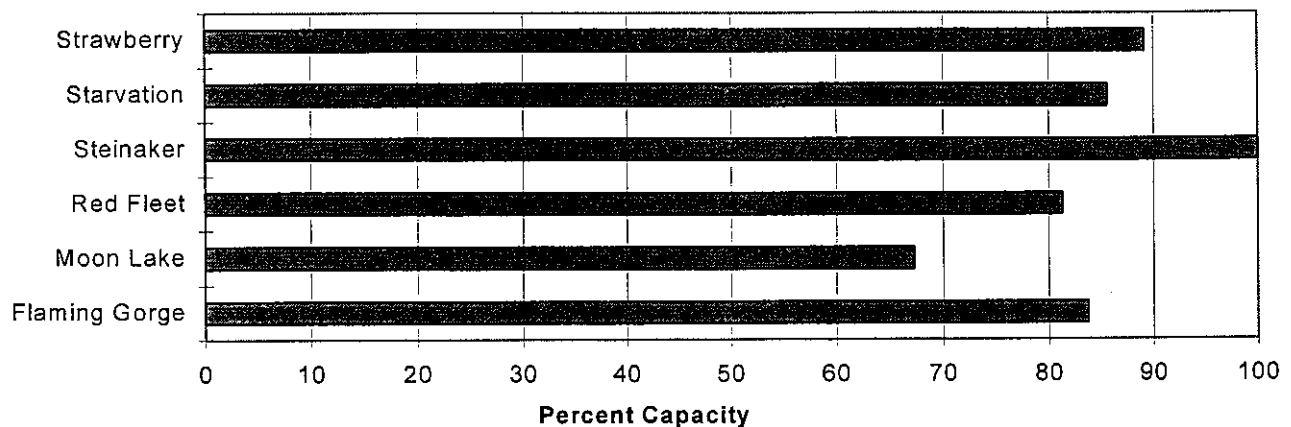
#### Precipitation

5/1/99



#### Reservoir Storage

5/1/99



UINAH BASIN & DAGGET SCD'S  
 Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		90%		50% (Most Probable)		30%		30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Blacks Fork nr Robertson	APR-JUL	74	84	90	95	96	106	95
EF of Smiths Fork nr Robertson	APR-JUL	24	26	28	93	30	33	30
Flaming Gorge Reservoir Inflow	APR-JUL	1148	1347	1450	121	1553	1746	1196
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	17.4	21	24	121	27	31	19.8
Ashley Creek nr Vernal	APR-JUL	47	55	60	118	65	73	51
WF DUCHESNE RIVER nr Hanna	APR-JUL	8.9	12.6	15.5	60	18.7	24	26
DUCHESNE R nr Tabiona	APR-JUL	75	84	90	86	96	105	105
UPPER STILLWATER RESV inflow	APR-JUL	70	81	88	109	96	106	81
ROCK CK nr Mountain Home	APR-JUL	83	93	100	106	107	117	94
DUCHESNE R abv Knight Diversion	APR-JUL	142	168	185	98	202	228	189
STRAWBERRY RES nr Soldier Springs	APR-JUL	16.8	23	28	48	33	42	59
CURRANT CREEK RESV Inflow	APR-JUL	6.5	9.8	12.0	57	14.2	17.5	21
STARVATION RESERVOIR inflow	APR-JUL	28	46	58	50	70	88	117
MOON LAKE Inflow	APR-JUL	60	68	74	107	80	88	69
Yellowstone River nr Altonah	APR-JUL	58	68	75	115	82	92	65
DUCHESNE R at Myton	APR-JUL	146	202	240	91	278	334	263
UINTA R nr Neola	APR-JUL	70	84	94	111	104	118	85
Whiterocks River nr Whiterocks	APR-JUL	48	58	65	112	72	82	58
DUCHESNE R nr Randlett	APR-JUL	151	224	315	96	406	479	328

UINAH BASIN & DAGGET SCD'S  
 Reservoir Storage (1000 AF) - End of April

UINAH BASIN & DAGGET SCD'S  
 Watershed Snowpack Analysis - May 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FLAMING GORGE	3749.0	3140.3	3190.6	---	UPPER GREEN RIVER in UTAH	6	97	163
MOON LAKE	49.5	33.3	32.7	31.8	ASHLEY CREEK	2	101	164
RED FLEET	25.7	21.0	21.8	---	BLACK'S FORK RIVER	2	110	136
STEINAKER	33.4	34.0	31.6	23.0	SHEEP CREEK	1	53	210
STARVATION	165.3	141.5	139.6	113.5	DUCHESNE RIVER	11	92	111
STRAWBERRY-ENLARGED	1105.9	986.3	1017.0	---	LAKE FORK-YELLOWSTONE CRE	4	107	121
					STRAWBERRY RIVER	4	45	56
					UINTAH-WHITEROCKS RIVERS	2	106	151
					UINTAH BASIN & DAGGET SCD	17	93	129

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

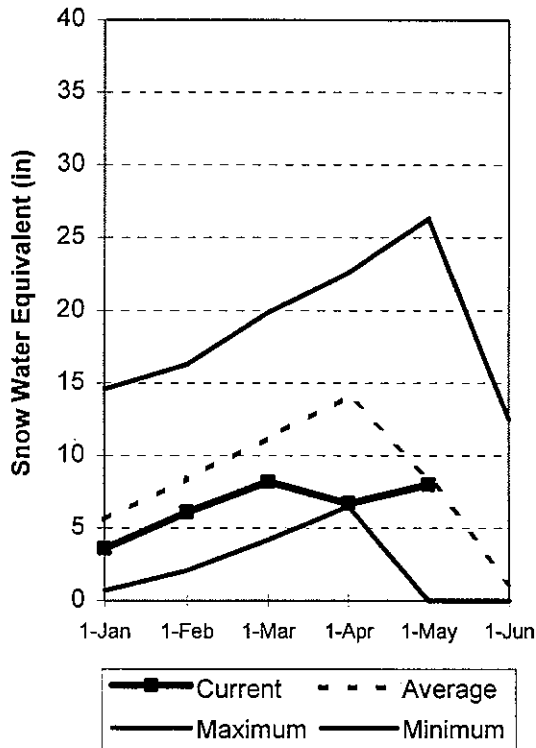


## Carbon, Emery, Wayne, Grand and San Juan Co.

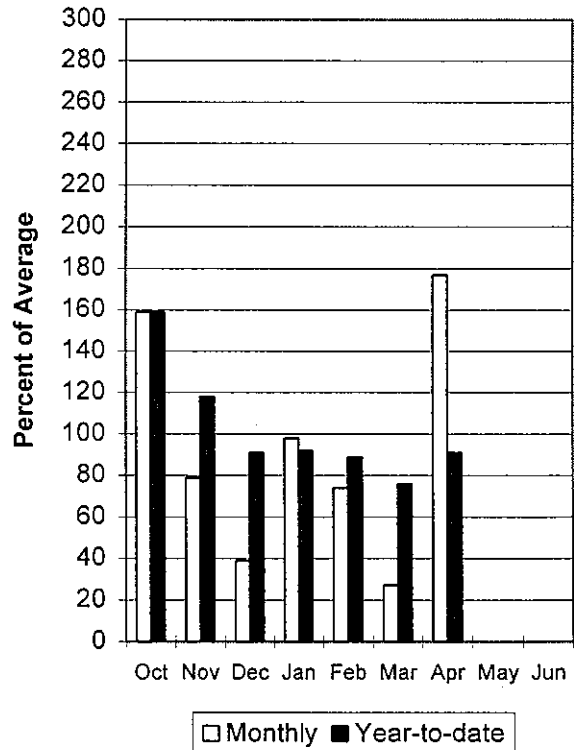
### May 1, 1999

Snowpacks in this region are at 95% of average, up 47% relative to last month and only 68% of last year. Individual sites range from 0% to 342% of average. April was very cool and wet, delaying snowmelt and increasing snowpacks a little over the past months dismal figures. Precipitation during April was much above average at 177%, bringing the seasonal accumulation (Oct-Apr) to 91% of normal. Reservoir storage is in excellent shape at 75% of capacity. General water supply conditions remain poor and water users on direct streamflow should prepare for a marginal runoff season. Snowmelt runoff in some areas is essentially over.

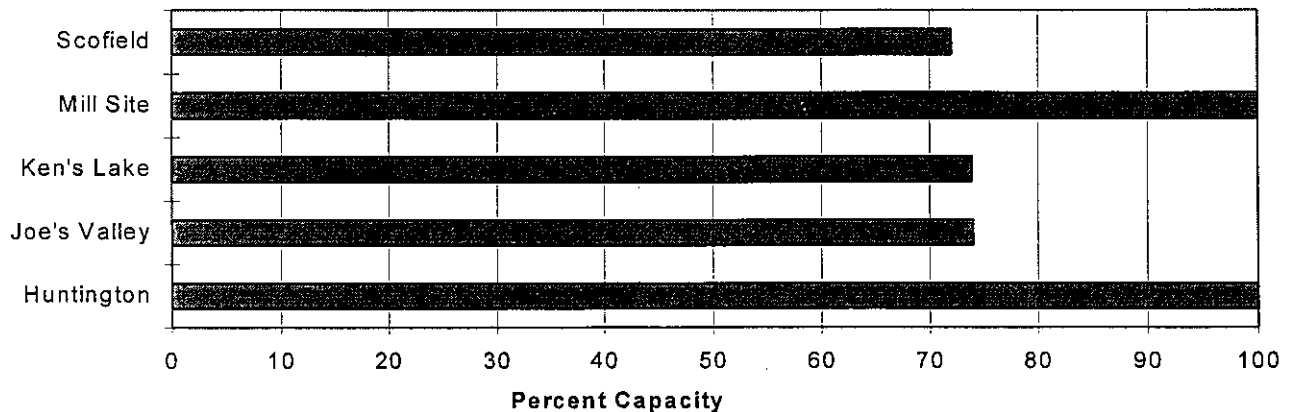
**Mountain Snowpack**  
5/1/99



**Precipitation**  
5/1/99



**Reservoir Storage**  
5/1/99



CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	6.2	7.9	9.0	77	10.1	11.8	11.7
Scofield Reservoir inflow	APR-JUL	7.9	27	30	68	33	57	44
White River blw Tabbyune Creek	APR-JUL	6.0	8.3	10.0	54	11.9	15.0	18.7
Green River at Green River, UT	APR-JUL	2399	2906	3250	103	3595	4102	3151
Electric Lake inflow	APR-JUL	7.0	8.7	10.0	66	11.4	13.7	15.1
HUNTINGTON CK nr Huntington	APR-JUL	7.0	22	25	61	28	48	41
JOE'S VALLEY RESV Inflow	APR-JUL	20	30	37	70	44	54	53
Ferron Creek nr Ferron	APR-JUL	21	24	26	67	28	32	39
Colorado River nr Cisco	APR-JUL	2516	3102	3500	85	3898	4484	4132
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	0.72	1.01	1.80	30	2.59	3.74	6.00
Indian Creek Tunnel nr Monticello	MAR-JUL	0.22	0.54	0.75	87	0.96	1.28	0.86
Indian Creek abv Cottonwood Creek	MAR-JUL	0.74	1.25	1.90	75	2.55	3.50	2.55
Seven Mile Creek nr Fish Lake	APR-JUL	1.87	3.14	4.00	62	4.86	6.13	6.50
Muddy Creek nr Emery	APR-JUL	6.8	9.9	12.0	61	14.1	17.2	19.6
North Ck ab R.S. nr Monticello	MAR-JUL	0.15	0.43	0.70	52	1.03	1.64	1.35
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	0.22	0.47	0.70	53	0.97	1.46	1.31
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	1.15	1.84	3.00	49	4.16	5.87	6.07
San Juan River nr Bluff	APR-JUL	678	822	920	80	1018	1162	1152

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of April

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - May 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	4.2	4.2	3.9	PRICE RIVER	3	85	110
JOE'S VALLEY	61.6	45.6	49.5	46.8	SAN RAFAEL RIVER	3	86	95
KEN'S LAKE	2.3	1.7	2.4	---	MUDDY CREEK	1	70	82
MILL SITE	16.7	16.7	16.0	6.3	FREMONT RIVER	3	65	106
SCOFIELD	65.8	48.0	40.7	36.6	LASAL MOUNTAINS	1	12	18
					BLUE MOUNTAINS	1	20	80
					WILLOW CREEK	1	0	0
					CARBON, EMERY, WAYNE, GRA	13	68	95

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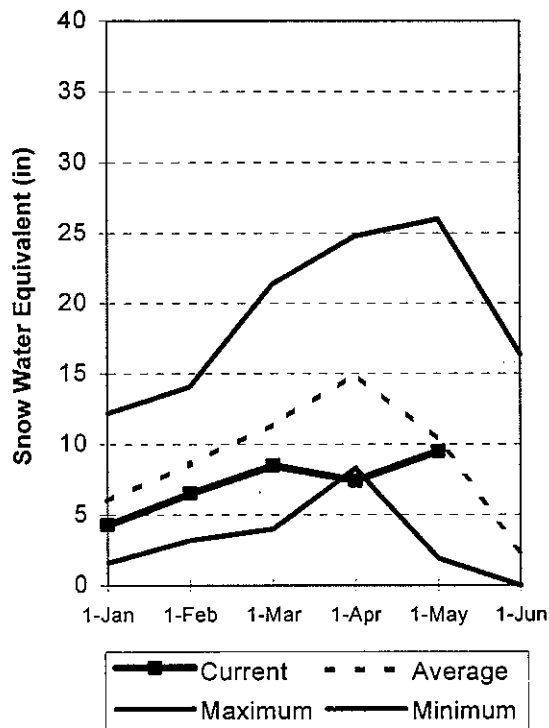
## Sevier and Beaver River Basins

### May 1, 1999

Snowpacks on the Sevier River Basin are near normal at 99% of average, up 47% relative to last month, and just 65% of last year. A cool, wet April has delayed snowmelt and actually increased them a little. Low elevation snowpacks (less than 8000 ft) have melted off. Individual sites range from 0% to 142% of average. Precipitation during April was much above average at 171% of normal, bringing the seasonal accumulation (Oct-Apr) to 77% of average. Reservoir storage is in excellent condition at 98% of capacity. General snowmelt water supply conditions are exceptionally poor. Those on direct streamflow will have a marginal year.

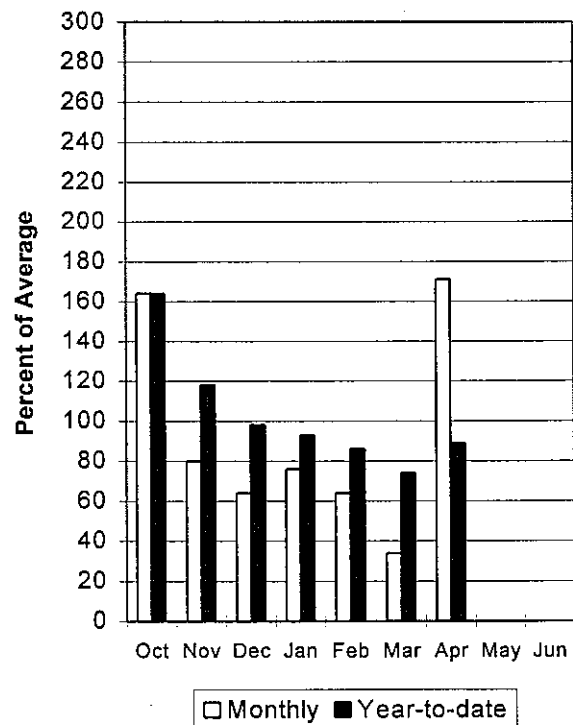
### Mountain Snowpack

5/1/99



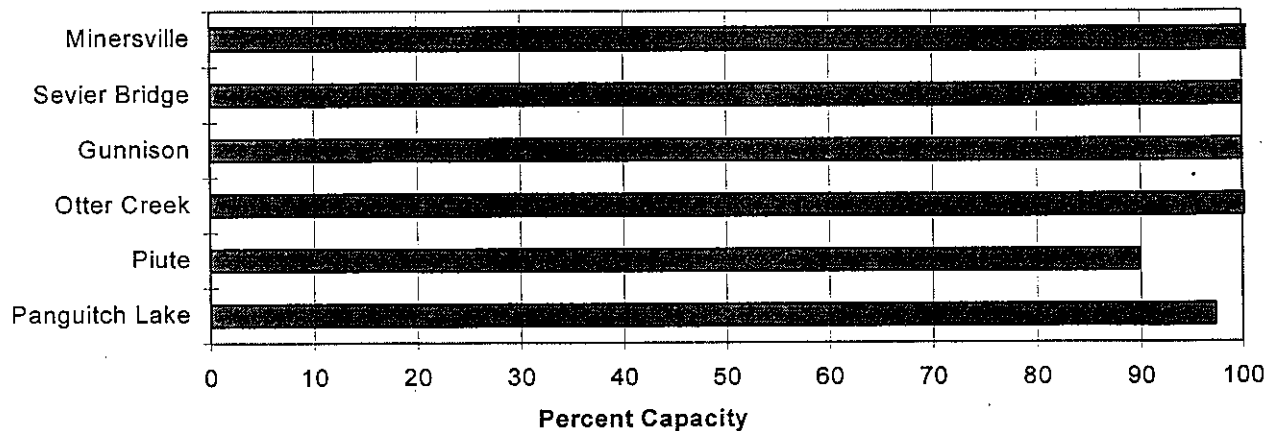
### Precipitation

5/1/99



### Reservoir Storage

5/1/99



SEVIER & BEAVER RIVER BASINS  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SEVIER R at Hatch	APR-JUL	10.3	20	26	48	32	42	54
SEVIER R nr Circleville	APR-JUL	14.3	29	38	51	47	62	75
SEVIER R nr Kingston	APR-JUL	10.8	28	38	46	48	65	83
ANTIMONY CK nr Antimony	APR-JUL	1.70	2.86	3.50	47	4.14	5.33	7.40
E F SEVIER R nr Kingston	APR-JUL	4.8	8.4	13.5	45	21	33	30
SEVIER R blw Piute Dam	APR-JUL	3.0		59	51		114	115
CLEAR CK nr Sevier	APR-JUL	4.4	8.6	11.1	53	13.6	17.9	21
SALINA CK at Salina	APR-JUL	0.5	2.6	9.0	51	15.4	29	17.6
PLEASANT CK nr Pleasant	APR-JUL	3.99	5.01	5.50	65	5.99	6.97	8.50
EPHRAIM CK nr Ephraim	APR-JUL	3.4	5.7	7.0	56	8.3	10.6	12.6
SEVIER R nr Gunnison	APR-JUL	65		105	44		311	239
CHICKEN CK nr Levan	APR-JUL	2.29	2.79	3.20	68	3.67	4.47	4.70
OAK CK nr Oak City (Acre Feet)	APR-JUL	917	1102	1250	70	1418	1704	1777
BEAVER R nr Beaver	APR-JUL	14.5	17.0	19.0	73	21	25	26
MINERSVILLE RESERVOIR Inflow	APR-JUL	12.0	12.6	13.0	78	13.4	14.1	16.7

SEVIER & BEAVER RIVER BASINS  
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNNISON	20.3	20.3	20.3	14.9	UPPER SEVIER RIVER (south	8	56	94
MINERSVILLE (RkyFd)	23.3	24.3	23.3	14.6	EAST FORK SEVIER RIVER	3	57	98
OTTER CREEK	52.5	52.6	51.9	39.5	SOUTH FORK SEVIER RIVER	5	56	92
PIUTE	71.8	64.5	66.6	44.7	LOWER SEVIER RIVER (inclu	6	75	103
SEVIER BRIDGE	236.0	236.0	215.1	136.0	BEAVER RIVER	2	64	101
PANGUITCH LAKE	22.3	21.7	17.5	---	SEVIER & BEAVER RIVER BAS	16	65	99

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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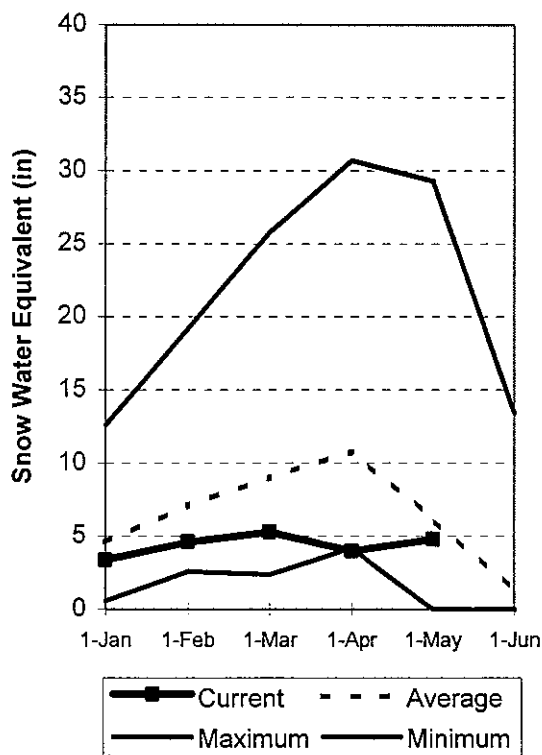
## E. Garfield, Kane, Washington, & Iron co.

### May 1, 1999

Snowpacks in this region are below normal at 77% of average, up 40% relative to last month and about 40% of last year. Individual sites range from 0% to 342% of average. April was cool and very wet delaying snowmelt for a time. Low and some mid elevation snowpacks have melted, leaving only the higher elevations to generate streamflow. Precipitation was much above normal during April at 171% of average, bringing the seasonal accumulation (Oct-Apr) to 77% of normal. Reservoir storage is in excellent shape at 90% of capacity. General water supply conditions are much below average. Water users on direct streamflow should prepare for a poor runoff season.

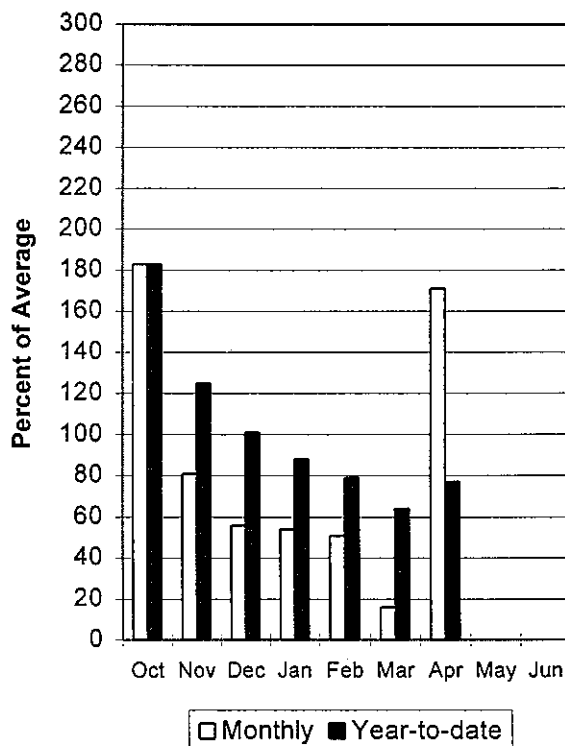
### Mountain Snowpack

5/1/99



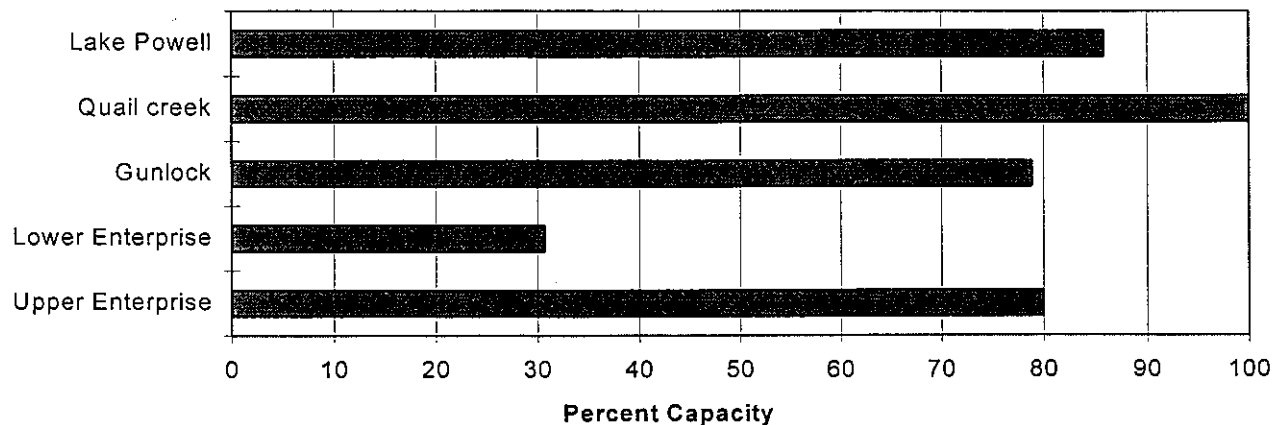
### Precipitation

5/1/99



### Reservoir Storage

5/1/99



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Lake Powell inflow	APR-JUL	5059	6215	7000	91	7785	8941	7735
Virgin River nr Virgin	APR-JUL	15.2	22	25	38	35	49	66
Virgin River nr Hurricane	APR-JUL	12.2	17.9	22	31	32	60	72
Santa Clara River nr Pine Valley	APR-JUL	0.48	1.11	1.50	28	2.65	3.50	5.30
Coal Creek nr Cedar City	APR-JUL	0.4	5.5	8.3	44	11.8	16.7	18.8

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Reservoir Storage (1000 AF) - End of April

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Watershed Snowpack Analysis - May 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK	10.4	8.2	10.4	---	VIRGIN RIVER	5	33	63
LAKE POWELL	24322.0	20889.0	20746.0	---	PAROWAN	2	56	94
QUAIL CREEK	40.0	40.0	40.0	---	ENTERPRISE TO NEW HARMONY	2	0	0
UPPER ENTERPRISE	10.0	8.0	10.0	---	COAL CREEK	2	35	67
LOWER ENTERPRISE	2.6	0.8	2.6	---	ESCALANTE RIVER	2	69	148
					E. GARFIELD, KANE, WASHIN	9	40	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

SNOW COURSE DATA  
FOR THE STATE OF UTAH  
As of May 1999

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
AGUA CANYON SNOTEL	8900	5/01	-	0.0	4.0	1.8	DRY BREAD POND SNOTEL	8350	5/01	-	16.2	14.7	18.0
ALTA CENTRAL	8800	4/28	81	33.5	41.7	33.6	DRY FORK SNOTEL	7160	5/01	-	5.5	17.7	9.3
BEAVER DAMS SNOTEL	8000	5/01	-	0.0	3.8	5.5	EAST WILLOW CREEK SN	8250	5/01	-	0.0	6.0	.0
BEAVER DIVIDE SNOTEL	8280	5/01	-	0.9	3.4	3.4	FARMINGTON CN SNOTEL	8000	5/01	-	32.9	41.5	19.9
BEN LOMOND PK SNOTEL	8000	5/01	-	32.5	54.6	33.9	FARMINGTON CANYON L.	6950	04/28	55	23.5	36.9	21.9
BEN LOMOND TR SNOTEL	6000	5/01	-	3.3	18.6	6.4	FARNSWORTH LK SNOTEL	9600	5/01	-	21.1	24.4	21.0
BEVAN'S CABIN	6450	04/28	3	1.0	16.7	4.6	FISH LAKE	8700	04/27	0	0.0	10.4	5.2
BIG FLAT SNOTEL	10290	5/01	-	17.8	26.7	20.2	FIVE POINTS LAKE SNO	10920	5/01	-	22.6	21.2	17.8
BIRCH CROSSING	8100	4/27	0	0.0	2.8	1.9	FRANCES FLATS	6700	4/29	18	8.3	18.6	0.7
BLACK FLAT-U.M. CK S	9400	5/01	-	2.6	5.4	6.6	G.B.R.C. HEADQUARTER	8700	04/27	28	10.3	16.9	15.4
BLACK'S FORK GS-EF	9340	04/28	25	7.2	10.4	9.2	G.B.R.C. MEADOWS	10000	04/27	64	22.1	27.1	26.1
BLACK'S FORK JUNCTN	8930	04/28	28	8.0	9.1	7.4	GARDEN CITY SUMMIT	7600	04/28	47	17.9	16.3	15.9
BOX CREEK SNOTEL	9800	5/01	-	9.8	14.7	8.8	GEORGE CREEK	8840					-
BRIAN HEAD	10000	04/27	48	14.5	29.3	21.6	GOOSEBERRY R.S.	8400	04/27	19	6.2	11.9	9.1
BRIGHTON SNOTEL	8750	5/01	-	23.6	25.2	16.9	GOOSEBERRY R.S. SNOT	7900	5/01	-	0.0	0.4	1.0
BRIGHTON CABIN	8700	4/30	67	26.6	29.3	24.8	HARDSCRABBLE SNOTEL	7250	5/01	-	5.3	11.2	10.6
BROWN DUCK SNOTEL	10600	5/01	-	26.7	21.3	20.3	HARRIS FLAT SNOTEL	7700	5/01	-	0.0	3.0	1.9
BRUCE CANYON	8000				0.0	0.8	HAYDEN FORK SNOTEL	9100	5/01	-	13.8	11.0	6.6
BUCK FLAT SNOTEL	9800	5/01	-	13.9	17.8	13.9	HENRY'S FORK	10000	4/28	41	11.6	20.7	13.6
BUCK PASTURE	9700	4/28	51	14.9	18.7	17.1	HEWINTA SNOTEL	9500	5/01	-	13.1	9.1	5.3
BUCKBOARD FLAT	9000	4/27	17	5.6	6.6	7.4	HICKERSON PARK SNOTE	9100	5/01	-	6.1	11.6	2.9
BUG LAKE SNOTEL	7950	5/01	-	25.2	17.7	16.0	HIDDEN SPRINGS	5500	4/29	0	0.0	0.0	0.4
BURT'S-MILLER RANCH	7900	04/28	0	0.0	0.0	2.0	HOBBLE CREEK SUMMIT	7420	04/27	7	2.3	10.6	7.3
CAMP JACKSON SNOTEL	8600	5/01	-	1.6	8.0	2.0	HOLE-IN-ROCK SNOTEL	9150	5/01	-	8.9	8.4	2.3
CASTLE VALLEY SNOTEL	9580	5/01	-	9.4	13.0	6.6	HORSE RIDGE SNOTEL	8260	5/01	-	21.8	16.7	14.4
CHALK CK #1 SNOTEL	9100	5/01	-	27.0	23.9	22.8	HUNTINGTON-HORSESHOE	9800	04/27	58	20.6	30.8	24.9
CHALK CK #2 SNOTEL	8200	5/01	-	14.6	11.5	9.8	INDIAN CANYON SNOTEL	9100	5/01	-	4.7	11.5	6.6
CHALK CREEK #3	7500	04/28	0	0.0	0.8	2.6	JOHNSON VALLEY	8850	04/27	0	0.0	7.6	3.8
CHEPETA SNOTEL	10300	5/01	-	15.9	16.8	12.0	KILFOIL CREEK	7300	04/28	33	12.3	12.7	9.9
CITY CREEK	7500	4/29	44	19.4	33.4	18.3	KILLION CANYON	6300	4/29	0	0.0	0.0	-
CLEAR CK RIDG #1 SNT	9200	5/01	-	16.4	16.4	14.1	KIMBERLY MINE SNOTEL	9300	5/01	-	12.1	18.5	12.1
CLEAR CK RIDG #2 SNT	8000	5/01	-	6.4	7.7	5.6	KING'S CABIN SNOTEL	8730	5/01	-	10.2	9.6	6.0
CORRAL	8200				-	-	KLODIKE NARROWS	7400	4/28	42	19.4	14.0	14.1
CURRANT CREEK SNOTEL	8000	5/01	-	0.0	2.9	2.6	KLOB SNOTEL	9250	5/01	-	10.8	32.8	16.4
DANIELS-STRAWBERRY S	8000	5/01	-	4.7	10.8	9.7	LAKEFORK #1 SNOTEL	10100	5/01	-	15.3	18.7	10.3
DESERET PEAK	9250				-	18.2	LAKEFORK BASIN SNOTE	10900	5/01	-	25.1	23.0	25.9
DESERET PEAK AM	9250				-	15.3	LAKEFORK MOUNTAIN #3	8400	04/28	4	1.2	4.5	1.8
DESERET PEAK SNOTEL	9250	5/01	-	16.7	29.7	20.6	LAMBS CANYON	7400	4/27	25	10.5	12.2	9.2
DILL'S CAMP SNOTEL	9200	5/01	-	7.3	10.4	8.9	LASAL MOUNTAIN LOWER	8800	4/27	1	0.2	1.0	4.6
DONKEY RESERVOIR SNO	9800	5/01	-	6.5	8.2	1.9	LASAL MOUNTAIN SNOTE	9850	5/01	-	1.4	11.4	7.9

SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEV.	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
LILY LAKE SNOTEL	9050	5/01	-	13.4	12.2	8.7	TRIAL LAKE SNOTEL	9960	5/01	-	25.2	23.9	24.0
LITTLE BEAR LOWER	6000	04/28	0	0.0	9.1	1.6	TROUT CREEK SNOTEL	9400	5/01	-	11.1	11.5	7.0
LITTLE BEAR SNOTEL	6550	5/01	-	0.1	4.4	2.4	UPPER JOES VALLEY	8900	04/27	5	1.3	7.4	5.7
LITTLE GRASSY SNOTEL	6100	5/01	-	0.0	0.0	.0	VERNON CREEK SNOTEL	7500	5/01	-	1.0	13.6	4.6
LONG FLAT SNOTEL	8000	5/01	-	0.0	2.1	2.0	VIPONT	7670	-	-	-	-	-
LONG VALLEY JCT. SNT	7500	5/01	-	0.0	0.0	.0	WEBSTER FLAT SNOTEL	9200	5/01	-	1.0	16.3	5.1
LOOKOUT PEAK SNOTEL	8200	5/01	-	24.8	30.8	10.0	WHITE RIVER #1 SNOTE	8550	5/01	-	3.8	8.2	6.2
LOST CREEK RESERVOIR	6130	04/28	0	0.0	0.0	0.0	WHITE RIVER #3	7400	04/27	0	0.0	0.0	0.6
MAMMOTH-COTTONWOOD SNT	8800	5/01	-	15.8	17.8	12.4	WIDTSEE #3 SNOTEL	9500	5/01	-	9.2	14.7	8.7
MERCHANT VALLEY SNOT	8750	5/01	-	9.3	15.6	6.7	WRIGLEY CREEK	9000	04/27	14	4.1	10.2	8.0
MIDDLE CANYON	7000	04/28	11	3.5	19.4	8.5	YANKEE RESERVOIR	8700	04/27	9	2.2	11.9	6.6
MIDWAY VALLEY SNOTEL	9800	5/01	-	15.7	32.0	20.0							
MILL CREEK	6950	4/27	53	20.7	24.2	18.8							
MILL-D NORTH SNOTEL	8960	5/01	-	24.3	28.5	13.2							
MILL-D SOUTH FORK	7400	4/26	29	12.4	15.6	13.4							
MINING FORK SNOTEL	8000	5/01	-	13.6	27.9	13.1							
MONTE CRISTO SNOTEL	8960	5/01	-	35.8	28.1	26.2							
MOSEY MTN. SNOTEL	9500	5/01	-	17.9	15.2	10.4							
MT BALDY R.S.	9500	04/27	59	19.8	28.8	25.2							
MUD CREEK #2	8600	04/27	25	8.0	12.6	8.2							
OAK CREEK	7760	04/27	27	8.6	16.1	9.0							
PANGUITCH LAKE R.S.	8200	04/27	0	0.0	0.0	1.1							
PARLEY'S CANYON SUM.	7500	4/27	39	15.4	16.2	12.8							
PARLEY'S CANYON SNOT	7500	5/01	-	7.1	10.1	8.5							
PAYSON R.S. SNOTEL	8050	5/01	-	7.3	15.1	11.6							
PICKLE KEG SNOTEL	9600	5/01	-	14.1	15.7	14.0							
PINE CREEK SNOTEL	8800	5/01	-	17.9	29.5	13.0							
RED PINE RIDGE SNOTE	9200	5/01	-	10.3	11.5	12.2							
REDDEN MINE LOWER	9500	04/27	37	15.6	19.2	16.5							
REES'S FLAT	7300	04/27	13	4.1	8.4	7.8							
ROCK CREEK SNOTEL	7900	5/01	-	2.1	2.0	1.1							
ROCKY BN-SETTLEMT SN	8900	5/01	-	21.4	35.3	21.0							
SEELEY CREEK SNOTEL	10000	5/01	-	15.1	16.6	15.1							
SILVER LAKE (BRIGHT.)	8730	4/28	61	27.9	31.8	26.8							
SMITH MOREHOUSE SNTL	7600	5/01	-	9.4	8.7	6.1							
SNOWBIRD SNOTEL	9700	5/01	-	43.1	43.2	30.0							
SPIRIT LAKE	10300	04/28	55	15.5	20.3	15.3							
SQUAW SPRINGS	9300	04/27	2	0.4	7.6	4.1							
STEEL CREEK PARK SNO	10100	5/01	-	19.7	20.7	18.9							
STILLWATER CAMP	8550	04/28	19	7.9	8.6	7.5							
STRAWBERRY DIVIDE SN	8400	5/01	-	7.6	12.3	11.5							
SUSC RANCH	8200	4/27	0	0.0	6.8	2.6							
TAIL POLES	8800	4/27	25	10.4	19.5	11.9							
THAYNES CANYON SNOTL	9200	5/01	-	26.7	27.9	12.0							
THISTLE FLAT	8500	-	-	-	-	-							
TIMBERLINE	9100	-	-	-	-	-							
TIMEANOGOS DIVIDE SN	8140	5/01	-	12.4	19.3	16.8							
TONY GROVE LK SNOTEL	8400	5/01	-	46.7	39.5	30.5							
TONY GROVE R.S.	6250	04/28	13	5.3	5.1	3.2							
TRIAL LAKE	9960	04/27	63	23.3	23.9	25.7							



UTAH SURFACE	WATER	SUPPLY	INDEX	
Snow Surveys				
Basin or Region	SWSI/%	Percentile	Years with Similar SWSI	Agricultural Water Shortage May Occur If SWSI Less Than
Bear River	0.9	61%	85,69,73,76	-3.8
Ogden River	1.1	63%	70,74,93,71	
Weber River	0.8	59%	71,85,93,98	
Tooele Valley	NA			
Provo	1.8	73%	71,74,69,80	
North Slope	NA			
West Uintah Basin	2.6	81%	87,86,98,97	
East Uintah Basin	1.8	71%	80,84,98,97	
Price River	-0.8	40%	88,81,62,76	
San Rafael	-1.2	35%	81,91,88,87	
Moab	-2.7	17%	89,90,81,91	
Upper Sevier River	0.3	53%	62,70,94,81	
Lower Sevier River	0.8	60%	74,81,75,79	
Beaver River	0.9	61%	78,70,88,93	
Virgin River	0.5	56%	86,94,92,88	
Snow Surveys			SWSI Scale: -4 to 4	
245 N Jimmy Doolittle Rd			Percentile: 0 - 100%	
Salt Lake City, UT				
(801) 524-5213				



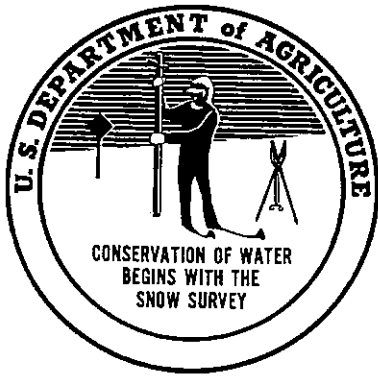
*Issued by*

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